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Full Name of Author — Nom complet de l'auteur

Chapman Margaret Shirley

Date of Birth — Date de naissance

March 13, 1939

Country of Birth — Lieu de naissance

Canada

Permanent Address — Résidence fixe

9908 - 114 st. Edmonton, Alta.
#101
(T5K 1R1)

Title of Thesis — Titre de la thèse

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Name of Supervisor — Nom du directeur de thèse

Dr James Parsons

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An Examination of Metaphoric Language in Inservice Education Program

by

© Shirley Chapman

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled An Examination of Metaphoric Language in Inservice Education Program submitted by Shirley Chapman in partial fulfilment of the requirements for the degree of Master of Education.

James B Parsons
.....
Supervisor

David Dillon
.....

L. Beaudoin
.....

Date May 19, 1981

Abstract

The purpose of this study was to analyze the metaphorical stances of inservice programs. Three metaphors (technological, political, and cultural) commonly found in our society were applied to the most common inservice models (Research, Development and Diffusion; Problem-Solving; and Social Interaction) found in educational literature.

Chapter I discussed how language shapes thought. Thoughts and behaviours are a combination of both culture and personal experiences. Within our language we label and from these label come expectations and specific models of behaviour. For example, we expect different behaviour from a user, a passive consumer, a client, or an adopter. Yet, in inservice all of these labels concern one person - the teacher.

Metaphors can control the way we construct the world. Chapter II discusses how metaphors often service as ways of channelling action and generating solutions by the way their presence structures and defines the problems we face. Because metaphors are central to how we think about the world, metaphorical analysis can provide a critical tool for the examination of inservice programs. The technological metaphor views man as rationale, changing when better facts are presented. Change is viewed as a series of orderly steps. The political metaphor views man as influenced by power and who can be changed when influenced by a change-agent. The cultural metaphor views society as an ecosystem where all men are equal. Change takes place as a result of personal involvement in the initiating of the change.

Chapter III discusses innovation, the third step of the change process in Western thought. The first two steps are research and development.

Inservice is a vehicle often used to diffuse innovation in education. People sometimes assume that all inservice has a common definition, perspectives, objectives, methodologies, expectations and solves a common problem. However, each of the three inservice models has a different root metaphor, which speaks from a different perspective. For example, in the Research, Development, and Diffusion model the teacher is seen as a passive consumer; in the Problem-Solving model the teacher is seen as a client; while in the Social-Interaction model the teacher is seen as an active adopter.

Chapter IV links the research and ideas of the previous chapters. A series of pertinent questions are used to analyze the 1981 Alberta Social Studies Inservice package. The analysis suggests that:

1. The dominant root metaphor is Technological, while the secondary metaphor is the Political. There is a slight use of the Cultural metaphor.
2. The dominant inservice model is the Research, Development and Diffusion, while the secondary model is Problem-Solving. The Social Interaction model is slightly utilized.
3. There is little internal consistency between the rationale of the 1981 Social Studies Inservice package and the actual package.
4. There is little external consistency between the philosophy of the 1981 Alberta Social Studies and the Inservice Package.

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Chapter I

Introduction

Change

"Change is inescapable in education (Lortie 1975:214)." The number of alternative approaches in education has increased sharply over the last two or so decades. The specialized system created to train teachers originated in the nineteenth century and blossomed into intense influence in the twentieth; but, it was not until 1950 that a program to upgrade the quality of public education was initiated. Today, thousands of people, writes Lortie, are engaged in research, development, and dissemination, and the machinery for producing educational innovation is always progressing. The result of all this activity is a marked increase in the options available to those making educational decisions at all levels. Any comprehensive list of options available today which did not exist twenty years ago would be too long for replication here - the list would touch on all aspects of school operation. However, the sheer knowledge of existing alternatives has an effect on the decision-making climate in schools and school systems (Lortie 1975).

As far as teachers are concerned, states Lortie, instructional approaches for teachers are already sufficiently diverse that attempts to create various mixes of elements could produce a variety of teacher roles. Even though thousands of people are motivated to diffuse new options, we must be careful to avoid assuming that the mere presence of alternatives automatically produces change. We will understand the diffusion only if we find models which are appropriate to the school situations. Models which

identify the critical processes in business and agriculture, for example, may mislead us in studying public education (Lortie 1975). Teaching differs from both these fields, of course, in that productivity is neither coercive as it is in business nor as tangible as in farming. Our models must take such differences into account. But have they?

> "Teachers have a built-in resistance to change because they believe their work environment has never permitted them to show what they can really do. Many proposals for change strike them as frivolous - they do not address issues of boundedness, psychic rewards, time scheduling, student disruption, interpersonal support and so forth. People interested in change should take such beliefs and preferences very seriously, for they reflect first hand experiences. If teachers become discouraged because they are short of supplies or lack backing from key adults, they will not be enthusiastic over demanding new approaches. (Lortie 1975:235)."

Whorf's Principle of Linguistic Relativity

What models have been transferred from other sectors of our culture to the educational sector? Why have we not built our own models? Is there any relationship between the education models of change that are now in use and the way we think about educational change? This study will examine these questions.

Language can shape our innermost thoughts. There is a strong connection between human language and human thinking. Benjamin Lee Whorf (1964) discusses how behavior will tend to a certain type when a situation is named in one pattern and the name is then "acted out" or "lived up to" in another. He describes a wood distillation plant where metal stills were insulated with a composition prepared from limestone called

"spun limestone." No attempt was made to protect this covering from excessive heat or contact with flame. After a period of use, the fire below one of the stills spread to the "limestone" which to everyone's great surprise, burned vigorously. The covering was named "limestone" which, because it ends in "stone" implies non-combustibility. A huge iron kettle of boiling varnish was observed, continues Whorf, to be overheated, nearing the temperature at which it would ignite. The varnish was moved "off" the flame and pushed some distance, but in a moment it ignited. Metaphorically, because the varnish was "off" the flame it was assumed the danger had passed; it was forgotten the internal process of convection in the varnish.

> "The clue to a certain line of behavior is often given by the analogies of the linguistic formula in which the situation is spoken of, and by which to some degree, it is analyzed, classified, and allotted its place in the world which is to some extent unconsciously built upon the language habits of the group (Whorf 1964:137)."

Our linguistically determined thought world not only collaborates with our cultural ideals, but engages even our unconscious personal reactions in its patterns and gives them certain typical characters. For example, dance in our culture expresses delight in motion rather than symbolism or ceremony and our music is greatly influenced by our dance forms. Our sports are strongly imbued with this element of the "poetry of motion", while the dance of the Hopi race seem to emphasize the virtues of endurance and sustained intensity. Hopi dance is highly symbolic and is performed with great intensity and earnestness (Whorf 1964).

Concepts of "space" and "time" are not given in substantially the same form by experience to all men but depend upon the nature of the

language through the use of which they have developed. Due to the western European concept of space and time, scientific thought is a specialization of this culture (Whorf 1964). We do not think of the designing of a radio station or a power plant as a linguistic process, but it is one nonetheless. The necessary mathematics is a linguistic apparatus and, without its correct specification of essential patterning, there would not be a radio that plays music. According to Whorf (1964) the Hopi with no concepts of past, present and future in time could not even conceive scientific thought. When man says that he thinks something and supplies words for the thoughts, his explanation of why he should have such and such thoughts before he came to utter them again turns out to be merely the story of his social needs at that moment (Whorf 1964). Every language incorporates certain points of view and certain patterned resistances to widely divergent points of view.

> "Each language is not merely a reproducing instrument for voicing ideas but rather is itself the shaper of ideas, the program and guide for the individual's mental activity, for his analysis of impressions, for his synthesis of his mental stock in trade; (Whorf 1964:212)."

Whorf's principle of linguistic relativity states that "the structure of a human being's language influences the manner in which he understands reality and behaves with respect to it (Whorf 1964:23)." Whorf appears to believe that the content of thought influences the process of thought. There is a relationship of habitual thought and behavior to language.

Sapir (1929) writes:

> "Language is a guide to 'social reality'. Though language is not ordinarily thought of as of essential interest to the students of social science, it powerfully conditions all our thinking about social problems and processes. Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are

> very much at the mercy of the particular language which has become the medium of expression for their society. ... We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation (Hoijer 1954:92)."

Other Writers' Theories

Brooks, Goodman and Meredith (1970) write that "language and thinking are so interrelated in most forms of sophisticated thinking that they must be dealt with together." Language is thought and as such is composed of the collective experiences of man.

Piaget (1964:4) writes:

> "Words are probably not a short cut to a better understanding... The levels of understanding seems to modify the language that is used, rather than vice versa...Mainly, language serves to translate what is already understood; or else language may even present a danger if it is used to introduce an idea which is not yet accessible."

Piaget views language as an outside agent in the person's developing thought that translates personal symbols or symbolic structures into collective or societal meaning. Piaget (1964) views the symbolizing and then the verbalizing occurring almost simultaneously but as separate operations.

Vygotsky's (1934) emphasis is conceived as a picture of conceptual structure made of shorthand language. He views pure thought as non-lingual, that is, it is conceived all at once. He sees inner speech as the first step toward preparing a thought for communication. Vygotsky (1934:153) summarizes his theory by the following quote:

> "Thought and language, which reflect reality in a way different from that of perception, are the key to the nature of human consciousness. Words play a central part, not only in the development of thought, but in the historical growth of consciousness as a whole. A word is a microcosm of human consciousness."

Words, terms, and concepts are very important to this study. For example, not only does the term client not have the same connotation as the term passive receiver or potential adopter, but different behavior is expected from each of these people. Yet, all three terms are referring to the teacher who participates in an inservice educational program.

Importance of Educational Inservice Programs

Inservice is an important aspect of educational change. It is the major vehicle that is used to translate change into a school system. Teachers participate in inservice programs throughout their careers, but are these programs successful?

Arends, Hersh and Turner (1978) state there are three reasons why inservice is important:

"1. with declining enrollments and related reductions in the workforce, schools must emphasize developing current human resources over hiring new ones.
2. as the demands for educational reform have grown louder, more schools have attempted to implement new programs that require new attitudes and skills on the part of current staff.
3. traditional practices for organizing inservice education and times of scarce resources have rendered many would-be providers of inservice impotent (Arends, Hersh and Turner 1978:196)."

Cooper and Hunt (1978:61) identify five changes that suggest need for continued inservice activities for teachers:

1. changes in educational technology - methodology and equipment.
2. the advent of new techniques for daily instruction.

3. the dissemination of innovation and new programs.
4. the discrepancy between preservice preparation and professional expectancies.
5. changes in the roles of teacher occasioned by a rapidly changing culture.

Wilen and Kindsvatter (1978) add another reason for the surge of in-service education. Accountability has become a concern throughout all of education. School districts need to devise ways to improve the instructional competencies of their teachers to promote confidence in their public. Inservice education is the logical means for responding to this expectation.

Problems of Inservice

Inservice is a very important aspect of the implementation of curriculum development, but it is not without its problems. Agne (1978) states that inservice planning is woefully inadequate. Most school systems award relatively low priority to inservice programs. Too often, inservice programs grow out of such considerations as 1) who is available, 2) who receives enthusiastic reviews, 3) what educational topics are au courant, rather than originating in the needs of the classroom and community. Wilen and Kindsvatter (1978) write that inservice education has, for the most part, been left for teachers to manage on an individual basis and at their own expense. Inservice has rarely been considered a high priority by school districts and, as a result, a substantial and continuous financial commitment to comprehensive staff development programs has been lacking. The one or two-day inservice programs and occasional summer workshops organized by school districts have been the most visible approach

to staff development. But such workshops have had only minimal effect on teachers' instructional skills and student learning for at least three reasons (Wilen and Kindsvatter 1978). They are:

1. teachers' attitudes towards inservice education have ranged from complacency to antagonism.
2. teachers have had little opportunity for input into the nature and design of the programs.
3. exposure to inservice education has lacked sufficient intensity to create a critical impact.

Cooper and Hunt (1978) state that the problems associated with traditional inservice training models focus, for the most part on teacher attitudes, acquisition of skills, and generalization and/or maintenance of effect. Teachers are seldom involved in assessing their needs or in planning inservice programs. Planning and assessment is usually executed by educational authorities other than the classroom teacher. This tradition has resulted in an extreme bitterness within the teaching profession. The methodology of information dissemination by large group lectures, small group discussions, and media presentations may not do a good job in providing teachers with new instructional skills. And last, inservice trainers have not implemented procedures to generalize or maintain positive changes in teacher behavior. Generalization and maintenance of effects should be planned rather than assumed, write Cooper and Hunt (1978).

Houston and Freibert (1979) charge that inservice programs are like perpetual motion machines - they attempt to get something for nothing. Inservice education receives little priority within the profession as school boards face mounting demands but tight budget restrictions.

Programs are fashioned without regard to research finding; without an integrated plan including long-range goals; without being articulated with other resources programs, and community needs; and sometimes even without the input of those purported to benefit (Houston and Freiberg 1979).

Boschee and Hein (1980) elected to judge a 1977 workshop, called "Facilitating Inquiry in the Classroom" in Sioux Falls, South Dakota, which attempted to improve the questioning ability of teachers and thus encourage students to search actively for knowledge and understanding. Their evaluation was based partially on an analysis of the content of the questions teachers asked their students before and after the workshop. The analysis demonstrated a lack of internalization of workshop content. Directly after the inservice program, 97% of the respondents expressed positive attitudes. This figure dropped to 40% six months later. The six-month follow-up evaluation and content analysis suggested additional factors as contributing to the general effectiveness of the "facilitating inquiry" workshops:

1. It was college-based rather than school-based.
2. It focused on the teaching of skills rather than conceptual objectives.
3. It used a "one-shot" approach.
4. It was totally structured so that participants could not modify techniques or goals.
5. The timing - June instead of August - appeared to have been highly inappropriate.

Wood and Thompson (1980) summarize the ineffectiveness of inservice education in four statements:

1. Overcoming a negative attitude toward inservice attributable to: inadequate planning and organization, unrelatedness to personal day-to-day practice, non-participation by practitioners in the planning, inadequate needs assessment, unclear objectives, lack of follow-up in the classroom setting after training, and recognition that change is a gradual process.
2. Overcoming administrators' negative views about teachers with respect to inservice. Lack of motivation, need for cajoling and lack of self-direction are common allegations.
3. Locating the inservice away from the classroom, over-emphasizing the receiving of information by telling rather than by doing, and failing to demonstrate the kinds of practices which teachers are to use in the classroom minimize the value of inservice.
4. Economic and moral support for professional development at school, district, and provincial levels, by administrative and elected officials is often lacking.

Kozuch (1978) lists several reasons, but writes that the most significant reasons for ineffective inservice programs is the human factor of teacher perceptions (such as:)

1. unsatisfactory previous experiences with implementation.
2. persistence of teacher's previous orientation when a change of role or approach is required.
3. lack of conviction that change is needed.
4. conflict between teacher's conviction and perception of role as opposed to that being promoted in the inservice.

5. perceived inability to control working conditions when adjustments in those conditions appear necessary to accomplish the change.

The Tri-Partite Committee in Inservice Education, Alberta (1980:1) states that "prior to 1975, and subsequently, inservice education for new and revised programs has been a subject of periodic representation by the Alberta Teacher's Association and the Alberta Trustee's Association to the government of the day." As a result, an advisory policy board was formed in 1975 which was to provide for increased public participation in the formation of basic curriculum policy. Its mandate was to formulate and recommend policies to the Minister of Education including curriculum development implementation and related matters. One of its recommendations was to ensure that school boards had sufficient time to provide teacher inservice and to acquire the necessary materials before programs became mandatory. In 1979, the Board and Minister approved in principle the following motion:

> "That the C.P.B. recommend that Alberta Education, the A.T.A. and the A.S.T.A. co-operate to develop an inservice procedure to introduce and maintain new curriculum."

Cruickshank, Lorish, and Thompson (1979:27) write that there are few clear concepts and definitions concerning inservice education. "There is not even agreement on what inservice education is." Also, they state, there is an absence of facts and conditional propositions. Without concepts and definitions, they continue, how can we carry on a dialogue? Without facts, how can we understand the many facets of a particular activity? Without conditional propositions, how do we know what will follow

or result from any given action? Therefore, writing, discussions, and criticism are almost exclusively rhetorical and more ornamental than useful, write Crukckshank, Lorish, and Thompson (1979). Inservice has been defined in several ways. Each has its own frame of reference. The following is an example of the various perspectives used when defining inservice. See Figure 1, (page 13).

The writers cannot agree if the term inservice should have a hyphen. In-Service, states Edelfelt (1975:75) is "doing it to others or a service for others, i.e., clerks, servants or waitresses." Inservice implies an activity that might improve the effectiveness of educational workers, that incorporates informal or formal setting, is freely chosen or mandated and is directly or indirectly job-related, states Edelfelt. Edelfelt prefers the term continuing education or professional development to in-service.

Writers do not agree that inservice is education, training or a program. Joyce, in a presentation in Edmonton in Fall, 1980, made no distinction between "education" and "training". This matter is frequently a heated debate in educational circles, writes Dr. Bernard Schwartz (1980), a professor in the Department of Elementary Education, University of Alberta. Other terms used by writers include employment, employees, employers, and employer-planned. These terms have very different meanings from professional development or professional performance. The purpose of an inservice for employees is incompatible with the purpose of inservice for professionals. Inservices that are individually-planned will be very different from in-services that are employer-planned. Many of the terms used in the definitions are incompataible as well as incongruous to each other. The

Figure 1

Examples of Definitions of "Inservice"

Agne (1978:91)	"an employment-oriented educational site-specific training designed to meet the needs of a particular school system or community."
Anderson, Seonzo (1978:83)	"the sum of all planned activities designed for the purpose of improving, expanding, and renewing the skills, knowledge and abilities of participants."
Chambers (1977:13)	"process whereby the teacher is enabled to 'restore and/or maintain and/or develop or elaborate still further his vocational self-constructs of 'I am a teacher'."
Edelfelt and Johnson (1975:5)	"any professional development that a teacher undertakes singly or with other teachers after receiving his initial certification and after beginning professional practice."
Fisher (1978:56)	"causes of change in a pre-ordained direction through programs designed to improve the competences of personnel in education."
Henderson (1978:12)	"structural activities designed, exclusively or primarily, to improve professional performance."
Koneck, Stein (1978:43)	"job-specific educational program organized to meet the needs of employer and employee within the local setting."
Zigarmi, Betz, and Jensen (1977:545)	"individually-planned activities for the improvement of instructional development of staff members."

nature of the inservice will depend upon which frame of reference is the basis for inservice, how the questions are posed, and what purposes are to be achieved. The description of the problem depends on the stance used in discussing the problem and it, in turn, will indicate the direction of the solution. There are many different conceptions of what an "effective inservice program".

An Effective Inservice Program

Not only do we not have a common definition of the term inservice, there is no agreement on what is involved in an effective inservice. Brimm and Tollett (1974:523) conducted a survey by means of a Teacher's Attitude Towards In-Service Inventory. They gave the survey consisting of a series of 34 statements regarding inservice education programs to teachers from each of the 147 school districts of Wisconsin. Using a Likert-type scale, respondents were asked to react to each statement. Eighty-nine percent of the teachers surveyed felt that inservice should strengthen their professional competencies. Ninety-six percent felt that inservice should include activities which allow for the different interests which exist among teachers. Ninety percent of the teachers felt that inservice should help them to upgrade their classroom performances. Teachers also stated that inservice should also focus on the classroom aspect of teaching; and that teachers needed to be involved in the development of programs, activities and methods of evaluating inservice.

Inservice educational programs should allow the trainees to go through three levels of impact before change can be ensured, write Joyce and Showers (1980:379-385). The outcomes of training are: 1) awareness or

the acquisition of concepts or organized knowledge; 2) the learning of principles and skills; and 3) the ability to apply those principles and skills in problem-solving activities.

Zigarmi, Beta, and Jensen (1977:545-555) concluded from a 1975 set of questionnaires, which were given to a representative sampling of 1,239 South Dakota teachers, that inservice must:

1) consist of many approaches to staff development;

2) be responsive to teachers' needs;

3) build on the interest and strengths of teachers;

4) assume that teachers can be resources to each other;

5) involve teachers as planners.

Oliver (1980:394-395) writes that the inservice program should assume that the "scientific inquiry approach is a valid and valuable tool that teachers, administrators and support personnel can use to translate educational goals into specific methods for achieving them."

Another view, held by Arends (1978:200-201), states that inservice should promote life-long learning for the individual professional. The needs of the "mature professional" are different from the needs of the younger professional. Inservice should allow mature professionals to clarify career options, increase their interpersonal competencies and actualize their potential as professionals. Inservice education programs, writes Arend, also should allow teachers to integrate work and education into their life. It should take into account not only the teacher's knowledge, but also their intentions, competencies, beliefs, and actions. A mature professional is defined by Hunt (1978) as the fourth stage in the career development of teachers. Hunt's four stages of the life cycle of

a teacher are: survival, consolidation, renewal and maturity. He states that inservice programs should give more attention to how teachers learn and to how teachers' learning styles are related to their teaching styles. Teachers then could become more able to personalize the learning experiences of their students.

Roy Bacon (1980), the co-ordinator of Inservice Education for the City of Manchester Education Department, England, said there are four major categories of teachers:

1. Beginners - fresh, enthusiastic and optimistic.
2. Pioneers - leadership potential, motivated, committed, ambitious.
3. Maintainers - backbone of the professional, keep the school running, diffus problems.
4. Settlers - cynical, do not want help or advice, often near retirement.

According to Bacon (1980), these four groups have four different types of inservice needs.

The task or goals of inservice have been described in a number of ways. Some writers discuss teachers' needs and career options, while others discuss the system's needs, student's need, or curriculum's needs. Teachers are labeled clients, mature professionals, or trainees by writers and educators. Educational terms have different connotations. For example, a "mature professional" does not have the same connotation as "client." The term client refers to a psychotherapeutic system where there is a therapist and a client (Miles 1964:439). The client enters a two person temporary system which will last long enough for certain objectives to be reached. The term client indicates that there is something wrong which needs to be changed. The therapist knows what is wrong and he will manipu-

late the client into making a change, - a deficit change, writes Miles (1964). The mature professional will be involved in voluntary and self-imposed change - creative change.

Some writers suggest that inservice should be based on a step-by-step scientific inquiry approach, while others have no particular implementation plan. When examining the ideas of the writers to describe the inservice experience, it becomes apparent that not everyone has the same expectations of inservice programs. Wood and Thompson (1980:374) write:

> "Inservice education, as it is constituted, is the slum of American education. It is disadvantaged, poverty-stricken, neglected, and has little effect. Most staff development programs are irrevelevant and ineffective, a waste of time and money. Disjointed workshops and courses focus on information dissemination rather than stressing the use of information or appropriate practice in the classroom. Seldom are these programs part of a comprehensive plan to achieve goals set by the school staff."

Why do we not have a universal concept of an effective inservice, its goals, methodology, and expectations? This research paper will explore this problem.

A Discussion of General Concepts

As indicated by Whorf (1964) North Americans view a number of concepts differently from other cultures of the world. These concepts are basic to our culture and in fact, determine how we frame our questions specifically concerning inservice. Change is an expected, natural process in our society. The result of change is progress. Innovation is the method of change, and inservice is the vehicle of innovation, progress and change. Therefore, before furthering this study, it is imperative that these concepts be examined.

1. Progress

Only in the modern West is the notion of progress a dominant theme. In recent centuries, the idea of progress throughout the whole of history has appeared in men's thoughts. Marie Condorcet (1743-1794) recognized that the rate of progress might vary, but neither fixation nor regression were possible. She saw progress as one type of linear development. Auguste Comte (1798-1857) viewed change in terms of progress. Progress is tied up with scientific development (Lauer 1973). Progress means getting better and better, a step forward.

2. Change

Huberman (1973:5 -7) defines "change as something that has happened between some original time, T_0 and some later time T_1 ..." He writes that change occurs spontaneously. Change is natural. There are two sources of change:

a) Creative change is voluntary and self-imposed, redefining problems, recognizing new problems and creating new ways of handling them. There is a change because of boredom, just for the sake of change, or to break a habit or routine.

b) Deficit change would be change by crisis, competition or conflict, strikes, internal strife or dissatisfaction.

3. Innovation

Innovation, according to Huberman (1973) is deliberate, willed, and planned. It connotes improvement and progress when actually meaning only something new and different. Innovation in education must continue, have a high rate of utilization, and should resemble its intended form as

planned. Fullan and Promfret (1977) emphasize the different aspects of the innovation process: first what should be changed and secondly the process of how to bring about the change. The latter involves a careful and consideration of the relationship of those who will be expected to change, to the process of how the change will be achieved.

Three Models of Innovation

House (1979:1) notes, in his discussion of educational innovation, that "in the past decade there has been a cascade of works on innovation, such that their number and diversity defies cataloguing." House's thesis is that these innovation studies have been generated and interpreted from only a few overall perspectives. ..."The three perspectives that have dominated thought on innovation over the past ten years are the technological, the political, and the cultural." House (1979) states that the technological metaphor became dominant in the 1960's after the launching of Sputnik and the attacks on the school curriculum by university scholars, while the political and cultural metaphors appeared as reactions to the technological metaphor during the 1970's. These three metaphors are examples of root metaphors from which grow many shoots that, taken as a whole, constitute an entire system or way of looking at things (Turner 1974).

Brown (1966:33) defines a metaphor as "an attempt to express in terms of experience thoughts lying beyond experience, to express the abstract in terms of the concrete, to picture forth the unfamiliar by means of the familiar, to express insensuous thought by sensuous terms." "A metaphor is a blossom of one tree on the branch of another (Brown 1966:46)."

Upon examining a number of metaphors and a number of inservice models,

it becomes apparent that all inservice models speak from a different metaphoric perspective; each expects a different role of the teachers; each has a different planner; each has a different goal for the in-service itself; each has a different set of unwritten and written assumptions; each has a different set of values inherent in them; each has a different philosophy; and each has different expectations of the implementation process. Finally, each of us who evaluates the "success" and/or "effectiveness" of inservice, brings to this evaluation our own metaphors.

Summary of the Chapter

Whorf (1964) said that language shapes our thoughts and is a shaper of our thoughts. There is a relationship between our thoughts and behavior to our language. Our thoughts are based on our culture and personal experiences. The western culture definition of change is that is it normal, inescapable and linear. Progress is viewed in terms of change, a step forward, never static or regressive. Innovation is viewed as the third step of the change process. The first two steps are research and development. Inservice is the vehicle of innovation or implementation; but as indicated by numerous writers, it is not successful for may reasons. Everyone assumes that inservice has a common definition, perspective, objective, methodolgy, expectations and solves a common problem. It does not have any of these. There are at least three perspectives of inservice. These include Research, Development and Diffusion, Problem-Solving, and Social Interaction. Each of these models will have a different perspective, defintion, objectives, methodologies, expectations and answer a different view of educational problems.

Problem Identification

"Inservice education is more complex than most critics realize (Drummond and Lawrence 1978)." It is now apparent that before inservice educational problems can be solved, a study of the psycholinguistics of the inservice models, the root metaphors of the inservice models, and the use of metaphors in our language and culture must be done.

The Problem

The purpose of this study is to undertake an examination of three metaphors commonly found in our society and apply them to three current inservice models that are part of the implementation stage of educational innovation. In examining three inservice models, the study will "expose" their root metaphors. Inservice education as part of the innovation process often operates under the assumption that everyone is "coming from" the same perceptions of what inservice means. The intent of this study is to examine and illustrate aspects of the metaphorical thinking that underlies current inservice models.

A review of the relative merits of these models enables one to identify the more significant dichotomies of inservice education. They are:

1. Decision-making may be centralized or decentralized, with or without consultation.
2. Needs assessment may be systematic, reflecting universal needs, or be sporadic, emphasizing individual concerns.
3. Primary development may be done by external experts or by the internal practitioners of the classroom.

4. Centralized development invites economic efficiency while decentralized action could lead to costly redundancy.
5. Structured uniformity will likely characterize a product developed centrally while locally-developed products will tend to result in a multistructured diversity.
6. Practitioners are viewed as passive when development is centralized and conversely as active when development is decentralized.
7. Centralized action considers implementation as sequential to development while decentralized action supports a concurrent relationship.

Summary of Each of the Following Chapters

Chapter II - There will be an examination of the implications of metaphors on our culture. Three root metaphors that dominant in education will be surveyed. They are:

1. technological - change is viewed from a more systematic, rationalized approach.
2. political - change succeeds only where "advocacy groups arise to support it.
3. cultural - change is viewed from an anthropological approach or "ecological approach."

Chapter III - Three dominant inservice models will be reviewed.

1. Research, Development and Diffusion is a model in which:

> "a strong central organization, assumed to possess a monopoly of know how, emitted instructions to practioners groups at the periphery and where communications is largely one-way and the structure of the system was hierarchical (Becker and Maclure 1978)."

2. Problem-Solving Approach is a model in which:

> "Attempts to base itself firmly in the practitioner's needs, but it does not take the view that these can be met without substantial support from the centre (Becker and Maclure 1978)."

3. Social Interaction is a model which tends:

> "to involve teachers much more in the business of curriculum reform, to encourage teachers to develop their own goals and strategies, assisted by suitable resources, rather than produce tightly structured packages geared to pre-determined objectives (Becker and Maclure 1978)."

Chapter IV - This chapter is divided into three sections. The first is a series of twenty-one questions that are the basis for analyzing any inservice model and program. In the second section, two fundamental questions are posed that are foundational to the inservice model philosophy and therefore its methodology. The twenty-one questions fit into one of the two fundamental questions. This section also has a discussion of why these questions are important. Thirdly, the 1981 Alberta Social Studies Inservice Project is analyzed to validate the questions.

Chapter V - This chapter begins with the re-statement of the problem of the thesis and a summary of each of the four chapters. A discussion of the research on inservice and, in particular, of the 1981 Alberta Social Studies Inservice Project validation follows the summary. Implications of the research and further research suggestions make up the final parts of this chapter.

Chapter II

Metaphor

The intention of this chapter is to show, as C. Brooks writes that, "The most fruitful modern criticism is a rediscovery and recovery of the importance of metaphor." In the last chapter, it was demonstrated that Whorf believed that our language both shapes our ideas and is a shaper of ideas. Stephen Brown (1966:191) states that "metaphor is of the very warp and woof of language, part of its permanent texture." In this chapter it will be confirmed that "language is vitally metaphorical (Shelley)."

"Metaphor" has been used in two fundamentally different ways. In the first and by far the most common sense, "metaphor refers to a part of language, so that a certain set of words may be said to be a metaphor (Schön 1967). Webster's New World Dictionary (1975) describes metaphor as a "figure of speech in which one thing is spoken of as if if were another." Schön (1967:35) defines metaphor as "giving things a name that belongs to something else." Nisbet (1969:4) explains it as:

> "a way of cognition in which the identifying qualities of one thing are transferred in an instantaneous, almost unconscious, flash of insight to some other thing that is, by remoteness of complexity, unknown to us."

Language without metaphor is difficult. How better to describe one type of anger than as "hot", another as "cold", passion as "burning", a silence as "heavy", a mood as "cloudy". If metaphors were stripped from our language, we would be removing a great deal of what we "know".

In the second sense, and by far the most important to the purposes of this paper, metaphor is a process of thought. Scheffler (1964) asserts that metaphors organize reflection and explanation in scientific and phil-

osophical contexts. Metaphors often serve as ways of channelling action. Schön (1979) emphasizes the extent in which metaphors can constrain and sometimes dangerously control the way in which we conceive the world in which we live. He suggests that metaphors generate their own solutions but they fail to present an objective characterization of the problem-solution. Ortony (1979) suggests that metaphors are important because of their ability to provide alternative or new ways of "seeing". Altiek (1960) alleges that a writer's metaphors may also tell the reader other things about him and his attitudes, as well as the attitudes he wishes the reader to comprehend.

Turbayne's "The Nature of Metaphor"

Turbayne in The Myth of Metaphor (1970) declares there are two aspects of metaphor as a process of thought. These aspects are the awareness of the presence of metaphor and the avoidance of being "victimized" by metaphor or being used by metaphor. To become aware of the presence of metaphor or to use a metaphor involves the awareness that there is "sort crossing." That is, there is a re-presenting of the facts of one sort in the idioms appropriate to another. This involves the pretense that the two different senses are one. For example, in the metaphor "man is a wolf" there is a pretense that man shares some of the properites of wolves but not enough of them to be classified as an actual wolf. Also, there is a pretense that two different things or sorts referred to in each pair share a similar name and similar qualities (sort-crossing). We are aware of the duality of sense in "wolf" but we make believe that it has only one sense - that there is no difference in kind, only in degree between

man-wolves. It is as if the sentence "men and timber wolves are wolves", which we know to be absurd, were meaningful and true. The metaphor not only pretends that something is the case when it is not, but it asks the audience to pretend as well. Actually, metaphors make one further demand. They intend that the audience believe, not just pretend, that man is a wolf. Turbayne has drawn to our attention two features. These are how metaphor is used and, therefore, our awareness of it. These features are (1) sort-crossing or the fusion of different sorts and (2) the pretense or as if feature.

The fable, the parable, the allegory, the analogy, the myth, and the model are extended or sustained metaphors. None of them are what they appear; they are all cases of representing the facts that belong to one sort as if they belonged to another: they are stories that we make believe to be true.

Burke, according to Turbayne (1970), says a metaphor offers a "perspective". Metaphor is a device for seeing something in terms of something else. Metaphors can change our attitude about facts and change our perspective. A metaphor tells us something about one character considered from the point of view of another character. To consider A from the point of view of B is to use B as a microscope with which to view A more closely and differently. "The metaphor is a stereoscope of ideas (Turbayne 1970:21)."

An effective metaphor, writes Turbayne (1970), acts like a screen through which we look at the world. It filters the facts, suppressing some and emphasizing others. It "brings forward aspects that might not be seen at all through another medium (Turbayne 1970:21)." These aspects are potentially powerful because they can cause a shift of attitudes to-

wards the object being viewed. A "good" metaphor, therefore, produces "shifts of attitudes." A good metaphor is one that lends itself better to modeling than another. For example to liken the human mind to a computer is a better metaphor than to compare it with a book. It is easy to see how one would go about constructing a promising model of mental activities on the basis of the suggested similarities between a human mind and a computer. A good metaphor is one which can be extended to a good model.

A change in attitudes can even cause a change in fact. When the attitudes are changed and this change becomes acceptable to many, the old descriptions are neglected, and the facts are changed. The tomato re-allocated to the vegetable class changes its taste history. The human characteristics that Aesop pretended were owned by animals have become literally part of these animals' characteristics: foxes have become cunning and lambs have become gentle.

However, when the pretense is dropped, what was before called a screen or filter is now more appropriately called a disguise or mask. There is a difference between using a metaphor and being used by it, between using a model and mistaking the model for the thing described. One is to make believe that something is the case; the other is to believe that something is the case.

According to Turbayne (1970), being used by a metaphor or taking a metaphor literally is a case of sort-trespassing. Sort-trespassing becomes a case of taking a metaphor literally only when one of the two different senses confused is metaphorical and this is taken for the literal.

Return to the metaphor "man is a wolf". He who is taken in by the metaphor is unaware that this is a metaphor and believes man is a wolf. For him, the class of wolves is enlarged by the addition of another subclass -- -man. For the person taken in, it is not a case of different senses of the word "wolf"; it is a case merely of different sorts of wolves. Another example is "teacher burnout." It is assumed that teachers are like fires. Fires can burn and burn out. If teachers are like fires, then they too can burn vigorously and then become lifeless. It is a case of different sorts of fires. There is no absurdity. If A is aware of the metaphor while B is not, A says correctly that B is being taken in or being used by the metaphor. B is taking the metaphor literally and for him there is not metaphor. The mask has become the face. Similarly in the case of models, A says that B takes the model for the thing, while for B there is no model. The model becomes the thing; there is no awareness or pretense for B.

Turbayne (1970) discusses a three stage life cycle of a metaphor to explain why people can be used by a metaphor. At first, a word's use is simply inappropriate. That is because it gives the thing a name that belongs to something else. It sort-crosses. The first response is to deny the metaphor and affirm the literal truth: "metal fatigue" and the "cruel sea" (only humans can be tired and be cruel, while metals can wear out and people may drown in a rough sea).

But because such affirmation and denial produce the acquired duality of meaning, the effective metaphor enters the second stage of its life cycle: the once inappropriate name becomes a metaphor. The metaphor is accepted by acquiescing to the make-believe. By making believe that

sounds are vibrations, mind is behavior, sea is cruel, metals fatigue, we use a metaphor purposely to illuminate obscure or previously hidden facts. At this stage, the metaphor, being new, fools hardly anyone. Stage two may last a very long time when the metaphor is accepted as good description. Within this long period, the original metaphor may develop in various ways; only one of which is a case of taking the metaphor literally.

In the third stage in the life of a metaphor, we no longer make believe that the metaphor only describes. The metaphor becomes the thing, not sounds and vibrations. The school is an industry, the sea is cruel, metal fatigue does exist. What had before been models are now taken for the things modelled. That is, special sets of implications had been invented, - the school, the sea, and metal. Conclusions about one were reducible to the premises about the other. Sort-crossing become sort-trespassing. The long continued association of two ideas results in our confusing them. In the case of the metaphor, the confusion is aided by the following factors:

1. the two ideas already share the same name, a factor of great power in producing the belief in identity.
2. we are not always told that the two ideas are really different.
3. even when we are told differently, we export properties from one ideal to the other (sort-crossing).
4. the line between make-belive and belief is thin.

Turbayne (1970) ably describes the effects of being used by a metaphor in this quote:

> "The victim of metaphor accepts one way of sorting or bundling or allocating the facts as the only way to sort, bundle, or allocate them. The victim not only has a special view of the world, but regards it as the only view, or rather, he confuses a special view of the world with the world....He has mistaken the mask for the face (Turbayne 1970:27)."

The victim does not know that there are other ways of viewing the world or that his view is only one of pretense or make-believe.

Turbayne (1970) claims it is important for us to avoid being victimized by metaphor so that instead of being used by it, we use it:

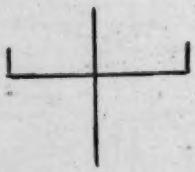
1. through the detection of the presence of metaphor; through awareness and sort-crossing.
2. through the attempt to "undress" the metaphor by presenting the "real" truth.
3. through the restoration of the metaphor to its second stage awareness of its presence. To adopt a metaphor as metaphor is to alter one's attitude to the facts, or to attitude shift.

Schön's "Generative Metaphor"

Schön (1963,1979) discusses metaphors in ways that are similar to Turbayne's, but his labeling is different and he extends them into social problems. Schön states that metaphors are central to how we think about the world, situations, and things; how we make sense of reality, how we define problems we later try to solve; how we interpret others and whether our thinking involves a generative metaphor. A generative metaphor, says Schön (1979:254), is the "carrying over of frames or perspectives from one domain of experience to another." He sees the problem-solving process as "coming to see things in new ways and the analyzing of

generative metaphors." Schön considers metaphors basic to our perspectives on the world.

A generative metaphor is described below. Here B is a kind (sort) of A; find A in B:



A
pitchfork

B
man

A is to be found in B, and A is found in B. An effect is to change the way B is perceived, B comes to be perceived as an outgrowth of A. The result is that we come to see A in a new way. We have to see A in a new way in order to see A in B; and the new way of seeing A comes out of our finding A in B (Schön 1963).

Schön (1979) asserts that the essential difficulties in social policy and social problems have more to do with problem setting than with problem solving. Difficulties have more to do with how the questions are posed and what purposes are to be achieved than with the selection of optimal means for achieving them. Often the analyzing of the problem, the description of the problem or the story that interprets the problem depends on the metaphor used in discussing that problem. Therefore, the direction of problem-solving is already set (Schön 1979). A child comes into the kitchen crying. If the mother asks the child who made him cry, the direction of the answer is apparent. However, another answer is expected if the question changes to:

1. What did your older brother do to you?
2. What did you do to deserve punishment from your brother?
3. What happened?
4. Do you want your mommy to kiss you better?
5. How badly are you hurt?

In short (Schön 1979), we can spell out the metaphor, elaborate the assumptions which flow from it, and examine their appropriatness in the present situations. The notion of generative metaphor becomes an interpretive tool for the critical analysis of social policy. Since we already think about social policy in terms of certain pervasive and tacit generative metaphors, then we ought to become critically aware of them.

The object of the problem-solving perspective is to search for solutions. The problems themselves are generally assumed to be given. Thus, it is assumed that we know, or can easily voice, the problems of crime, murder, rape, cities, the problems of the economy, the problems of population limitation, but that we cannot yet solve them. The task, therefore, is to find solutions to known problems. But Schön (1979) claims that the problems are not given. They are, in reality, constructed by human beings in their attempt to make sense of complex and troubling situations. Ways of describing problems change from one century to another, one era to another, one town to another, or one society to another. New descriptions of problems tend not to spring from the solutions of the earlier set problem, but evolve independently as new features of situations that come into view or prominence. In the 1970's, health problems were often described from a diet perspective, while in the 1980's these same health problems are being described from an air pollution perspective. The ur-

ban problem, for example, tended to be defined in the 1950's as "congestion", in the 1960's as "poverty" and in the 1970's as "fiscal insolvency."

Each view of the problem conveys a very different view of reality and represents a special way of "seeing." Each view selects for attention a few salient features and relations from what would otherwise be an overwhelming complex reality. The view gives these elements a coherent organization and describes what is wrong with the present situation in such a way as to set the direction for its future transformation. Through this process, there is a leap from fact to values, from "is" to "ought".

The researcher sees A and B and takes an existing description of B as a redescription of A. When A is seen as B the evaluation implicit in B is carried over to A. This sense of the obviousness of what is wrong and what needs fixing is the hallmark of generative metaphor in the field of social policy. A girl says to a boy "I know your type", and she has him pegged. Her perception of him may change, but not her category. Or a man meets another person walking a street. He looks to him like someone he went to school with and he beings to call him by name, reminding him of former escapades, and tells him old jokes but, he turns out to be someone else. One looks for old things to define or to recognize the new. But what seems obviously correct in a new situation may, upon reflection, seem utterly wrong. Insofar as generative metaphor leads to a sense of the obvious, its consequences may be negative as well as positive. When we see A as B, we may not necessarily understand A any better than before, although we understand it <u>differently</u> than before. How well we understand it has something to do with how well we understood B to begin

with, and also something to do with the ways in which seeing A and B leads us to restructure our preceptions of A. At any stage of the life cycle of generative metaphor, we may be seeing A as B, ignore or distort what would take, upon reflection, to be important features of A. If we are to avoid being used by the metaphors and really attempt to solve social problems, then it is important to become aware of the generative metaphor which shapes our perceptions of phenomena. It is significant to be able to attend to and describe the dissimilarities as well as the similarities between A and B. Last, we need to become aware of, and to focus attention upon, the generative metahpors which underlie our problems. When we become aware of the generative metaphors in our problems, our diagnosis and prescriptions cease to appear obvious and we find ourselves involved, instead, in critical inquiry. Being aware of generative metaphor then becomes a tool for critical reflection when we attempt to solve problems of social policy.

The defining of problems and the perspective from which the problem is viewed important. The ways in which we state social problems determines both the kinds of purposes and the values we seek to realize. We predispose the directions in which we seek solutions. Contrary to the problem-solving perspective, problems are not given, nor are they reducible to arbitrary choices which lie beyond inquiry. By being aware of the ways in which we state social problems, and by reflecting on the problem-solving processes which are usually kept tacit, we may consciously select and criticize the perspectives which shape our responses. We create new meaning when a metaphor is used and understood. New knowledge can result from the comprehension of language in general and the comprehension of

metaphors in particular. Generative metaphors facilitate new perceptions, explanations, and inventions when defining and processing problems.

Three Metaphorical Perspectives

Two questions have been answered regarding metaphor: What are metaphors? How are metaphors used? The first question is theoretical while the latter question is practical. Metaphors are important because they provide alternative ways of seeing and understanding. They permit the articulation of new ideas, as these new ideas are not able to be created in literal language.

Teachers use metaphoric language in their classrooms or when they describe their classrooms. For example, military metaphors are being used when the teacher is discussing "a lesson bombing", "arming the students for the future", or "battling with the students". "Throwing in the towel" or "pinch hitting" for someone else are examples of sports metaphors. Teachers are described in these examples of the economic metaphor: "surplus teachers" and "supply teachers". Describing students as "effective" or "efficient" is using the technological metaphor.

Metaphors, again, are used when discussing the role of the teacher in the classroom or when analysing and/or prescribing the activities of the teacher (e.g. teachers are described as psychotherapists, youth workers, leaders, jailers, zoo keepers, tyrants, or policemen). But teachers are really none of these other people, they are teachers. The "as if" portion of the metaphor is missing. This omission leads to confusion because we come to believe that the teacher is the metaphor when such is not the case. However, if the teacher perceives himself as a "sergeant taking his troops home from the library," then he may behave

accordingly. If a teacher describes himself as a producer, he begins to see himself as a producer and he will behave as if he were the manager of a factory. Once the teacher is in this frame of mind, he brings in other concepts associated with that metaphor such as efficiency work, quality control, economy, industry, mass production, job, precise time schedules and assembly lines (Hyman 1974:27-35). Schön (1979) emphasizes the extent to which metaphors can constrain and sometimes dangerously control the way in which we construct the world in which we live.

There are numerous metaphors in education, i.e. military, growth, sculpture, economics, prisons, sports, and industry. Upon examination of several, the researcher has chosen three which are very dominant in education and, in particular, the basis for inservice programs. They are technological, political and cultural. Each will now be examined in detail.

Technological Metaphor

Schön (1967) presents the dynamics of industrial change as a metaphor for change in our society as a whole. His book Technology and Change develops this theme. His view of innovation is that:

"1. It can be managed.
2. It must be analyzed into its component parts and be made subject to rational steps.
3. It follows a series of orderly steps, each of which seems to relate special efforts to corporate objectives, and each lends itself to effective management practice along familiar corporate lines (Schön 1967:19)."

In order to reduce the risks of innovation, Schön (1967) states, people do things only when they have been shown they are worth doing. This rational view of innovation assumes that invention follows as a series of orderly steps.intelligently directed toward an objective spelled

out in advance. There is a rigid division of labor between those concerned with the need (marketing) and those concerned with the technique (technology). Man is seen as an extension of the machine.

Western society accepts this rational view of innovation because it views functions as an idealized, after-the-fact view of innovation that can be controlled, managed, and justified. Such a view tends to calm fears, gain support or give an illusion of wisdom. It is more encouraging to believe that innovation is essentially deliberate and a rational process in which success is assured by intelligent effort.

There may be utility in acting as if it were true. The formulation of objectives for technical effort provides a stimulus for action and a direction for the effort. Planning the process of innovation, which assumes the goal-directed order structure of the rational view has utility as a programming device.

Bennis, Benne, and Chin (1969) state that strategies of innovation should be consistent with the metaphor that they represent. The empirical rational approach implies that men are rational and that they will follow their rational self-interest once they understand it. The innovation will be adopted if it can be rationally justified and if it can be shown that the adopter will benefit by the change. The assumption is also that reason determines the process of initiating innovations; thus scientific investigation is the best way of extending a certain kind of knowledge from a basic research to practical application.

Clark and Guba (1965) have formulated very specific processes related to, and necessary for, change in educational practice following research. For them, the necessary processes are:

1. development, including invention and design.

2. diffusion, including dissemination and demonstration.

3. adoption, including trial, installation and institutionalization.

This process has been labeled the Research, Development and Diffusion innovation model.

Huberman (1973) views the technological metaphor as a theory-into-practice model or a research and development model. Innovation is invented, developed, produced and disseminated to the user. The innovation is not analysed from the viewpoint of the user - who is considered passive. Nor does research begin as a set of answers to specific human problems, but rather as a set of facts and theories which are then turned into ideas for useful products and services in the development phase. The knowledge is then mass produced and diffused to those for whom it might be useful. Basic research is translated into applied knowledge. There may be a dim understanding of how the knowledge gets transformed into something useful, but the firm belief remains that somehow it filters down.

Lauer (1973) sees technology as the driving mechanism of change. Man seems to be forever gasping to keep up and adapt to the world that technology is every creating. We North Americans "view technology as the Savior (Lauer 1973:102)." This metaphor stems from such ideas as the Baconian notion that knowledge is power. The application of technology or the development and application of new technology is seen as able to resolve all the varied problems of mankind including the impending energy shortage. August Comte (1798-1857) gave impetus to this viewpoint by equating social progress with the development of a scientists to mili-

tarists, sharing in the conviction that the development and application of technology can resolve all the varied problems of mankind.

Others see the extreme opposite: technology is the source of man's ills. This conception derives in part from thinkers like Rousseau and Thoreau and their ideas of naturalism and in part from the various socialists' criticisms of the capitalistic misuse of technology. Jacques Ellul for one, according to Lauer (1973), sees modern man losing control over his destiny to a rampant technology. Man is seen as having become enslaved to that which he thought was his servant. Man has created and is devoured by his own creation. And, in the process, his patterns of thought and behavior have become phenomena which are shaped by technology.

Another critic quoted by Lauer (1973) is Theodore Roszak, who paints a grim picture of technology's role in the modern world. Leaders justify their behavior by the technical experts who have, in turn, justified themselves by appealing to scientific thought. In their view, beyond the authority of science, there is no appeal.

However, the role of technology in change has been enormous by:

1. increasing our alternatives.
2. altering interaction patterns.
3. creating new social problems.

Hyman (1973:30), also a critic, writes that this

> "technological metaphor is a deadly one. Its pervasiveness reflects our society's emphasis on getting and spending, on producing and consuming. It is deadly because it subverts humane interaction. Behavior leads the teacher to treat the student as inanimate objects, as things to be processed, stamped out, and finished on the conveyor-belt assembly line instead of as evolving people. It leads the teacher to think that he can and should decide what his product (the student) will become without consulting with the student."

Johnson's (1976) paper illustrates how technology is a generative metaphor of education. By about 1930, school administrators were perceiveing themselves as business managers. Practices which enabled industrial managers to increase wages and lower costs were assumed to be applicable to education, continues Johnson. School problems were defined in business, technical and financial terms. There is an emphasis on how to do things rather than on why. The function and the nature of education were scarcely mentioned. Getting the work done as efficiently as possible and the satisfaction of the worker were compatible goals. The importance of the work, itself, was not mentioned.

House (1979) describes the technological metaphor as having replaced the tacit basis of curriculum with a more systematic and rationalized approach. This innovation process is separated into functions and components based on rational analysis and empirical research. House (1979) suggests that the Clark-Guba Research, Development, and Diffusion model of education innovation still dominates government thinking about change. The technological metaphor focuses on the innovation because it assumed that everyone was pursing a common end and the means were not a problem. It reflects a society believing in progress. The only problem was to find how best to achieve this progress.

Political Metaphor

It is man who makes history. To what extent are competition and conflict responsible for change? What kind of change follows when men enter into conflict? Can change occur without conflict? Among the North Americans, conflict is of central concern. Dahrendor, writes Lauer (1973),

argues that social conflict has a structural origin, namely, the dominance relations that prevail in all social organizations. In other words, group conflict is to be understood as a conflict about the legitimacy of relations of authority. "Change is ubiquitous (Lauer 1973:249)."

Even assuming that most changes may be effected democratically, writes Lauer, there may be an unwillingness to expend the time and energy necessary for democratic procedures. From the point of view of efficiency or profit, the elitist approach is superior. The task of the elites is to effect change with or without the willingness of others involved in the change. The basis of the political metaphor is power tactics, whose desired outcome facilitates new relationships (Lauer 1973).

Lauer (1973) states that conflict leads to change. He is one of the numerous scholars who link conflict with change. Other writers who make the same link are: the Wilsons, in their study of Central Africa The Analysis of Social Change; Martindale in his description of societal creativity that lasted for centuries in Social Life and Cultural Change; and Durant in his study of identifying conflict as a factor in Florence in The Renaissance. Lauer (1973:44) writes that "conflict is a driving mechanism for change ... power is the name of the game." Any effort to direct power, therefore, requires the mobilization and manipulation of power over others. The power strategy emphasizes the ability to coerce; as well as involves the control of information and creation of ambiguity, writes Lauer.

Bennis, Benne, and Chin (1971) consider the political metaphor a process of influence involving an application of power in some form, political or otherwise. There is a compliance of those with less power to the

plans, directions, and leaderships of those with greater power. Often the power or authority is legitimate. The power may involve getting the authority of law or administrative policy behind the change to be effected. Some power strategies may appeal less to the use of authoritative power to effect change than to coercive power, legitimate or not, in support of the change sought. It is assumed that man acts on the basis of power relationships - legitimate or coercive.

Power continues Bennis, Benne, and Chin (1971) in this power-coercive strategy is an ingredient of all human action. The difference lies in the kinds of power used to implement change and the ways in which power is generated then applied in the processes of effecting change. The application of this metaphor depends on knowledge as a major source of power, especially based in the form of knowledge-based technology. In this view men of knowledge are legitimate sources of power and the desirable flow of influence or power is through processes of education. They offer the dissemination of valid information from men who know to men who don't know. There is a recognition of the importance of the non-cognitive determinants of behavior as resistances or supports to changing values, attitudes, and feelings at the personal level and norms and relationships at the social level, write Bennis, Benne, and Chin (1971).

Joyce and Weil (1972) state that B.F. Skinner's Theory of Operant Conditioning represents the process by which human behavior becomes shaped by external forces into certain patterns. Either or both of the theory's two major operations, reinforcement and stimulus control, are emphasized in the educational applications of operant conditioning theory. Behavior modification is one strategy used in the process of re-education of persons who are to "change."

House (1979) utilizes the concept of personal face-to-face interaction as a key idea in his concept of political metaphor. Personal contact is essential in innovation because it provides the opportunity for two-way questioning, persuading and intense interaction that must accompany change. The political metaphor has concepts such as competing factional groups, mutual adaptation, and curriculum negotiation.

Johnson (1976) wrote that education, in the late 1950's and 1960's borrowed the economic portion of the political metaphor. The result is known as the economics of education. Studies in this new area attempted to demonstrate the validity of a theory of economics which held that education increases personal income and promotes economic growth, i.e. the Gross National Product. Increased expenditures on education and increased years of schooling were justified on the basis of education's reputed contribution to the economic growth of this country.

If education fails to measure up to the economic claims made for it, writes Johnson (1974), advocates of expenditures in other areas of social life have a legitimate claim to these same funds by claiming the ability to promote growth in the Gross National Product. Concepts like the Gross National Product of "progress", and the value of time begin in kindergarten. In order to increase production, output must be studied by school boards as well as children in the classroom. Productivity is a concern of teachers and school boards and sought by increasing outputs for each unit of time (Johnson 1976).

Since measuring output is necessary to determine productivity and any efforts to increase it, only factors of output which are measurable can be taken seriously. When this kind of thinking gets carried over in-

to education, it means that components or goals, which are unmeasurable or difficult to measure, like creativity, critical thinking or awareness are eliminated in favor of easily measured goals such as word recognition, letter-writing and mathematical computations (Johnson 1976).

Since economists are not interested in or concerned with studying the actual production process, i.e. the relationship of work, then educators are not encouraged to study the actual teaching - learning process but are encouraged to study the inputs and outputs from the school system. Economists use the concepts of "progress", "efficiency" and "growth". They have a special meaning in that they are not to threaten social stability, that is, the current status quo of big business and big government. Disarmament, for example, wouldn't be considered "progress" or "efficiency" by economists if it threatened to disrupt the stability of corporations, no matter how much it contributed to the quality of life (Johnson 1976).

Population studies made by economists of education measure the group achievement, not individual achievement, so that this output can be measured against expenditures for education in order to determine at what rate productivity in education is increasing or decreasing; to determine which population groups are being educated with the greatest cost-effectiveness; and to compare expenditures for education with the output produced by expenditures in social areas competitive with education such as health care, job training or welfare (Johnson 1976).

In the political metaphor, states Bennis, Benne, and Chin (1971), there is an emphasis upon political and economic sanctions in the exercise of power. Another strategy is the utilization of moral power, playing upon sentiments of guilt and shame. Political power carries with it legitimacy

and the sanctions to those who break the law. Getting a law passed against racial discrimination in the school brings legitimate coercive power behind efforts to desegregate the school, threatening those who resist with penalties under the law and reducing the resistance of others who are morally oriented against breaking the law. Economic power exerts coercive influence over the decisions of those to whom it is applied. Thus federal appropriations granting funds to local schools for increased emphasis upon French instruction tend to exercise coercive influence over the decisions of local school officials concerning the emphasis of the school curriculum. In general, continues Bennis, Benne, and Chin (1971), this power-coercive metaphor seeks to mass political and economic power behind the change goals which the strategists of change have decided are desirable. These strategies tend to divide the society when there is a division of opinion and of power in that society. Bennis, Benne, and Chin (1971) assert that when a power-coercive way of making decision is accepted as natural, the power struggle shifts to the negotiation table and compromise and trade-offs between competing interests may become the expected goals of the intergroup exchange.

The political metaphor suggests that all is not harmonious. There may be problems and value conflicts, writes House (1979). Not everyone wants the same thing. Opposing factions will have to bargain and compromise or resort to political devices. Conflict is not only possible but probable; however,the assumption is that there is enough value-consensus that compromise can be achieved successfully even through securing the co-operation of others becomes problematic. One must reach agreements with others, must come to understanding, and must secure their assent

before proceeding. To many, innovation is seen as political, and only through conflict is porgress possible. It is assumed that differences will be resolved by bargaining (House 1979).

Political power has traditionally played an important part in achieving changes in education. The processes of re-education of persons who are to conduct themselves in new ways still have to be carried out. The new conduct often requires new knowledge, skills, attitudes, and value orientations. On the social level, new conduct may require changes in the norms, the roles, and the relationship structures of the institutions involved. These changes combine political coercive and normative re-educative strategies, both before and after the political action (Bennis, Benne, and Chin 1971).

Cultural Metaphor

The cultural metaphor involved in progress or change is not entirely new. According to Joyce and Weil (1972), it can be traced back to Plato's Republic, Aristotle's The Work of Aristotle, Augustine's City of God, Sir Thomas More's Utopia, Comenius' The Great Didactic and John Lock's Some Thoughts Concerning Education. More recently, John Dewey's Democracy and Education combined a view of society with a view of the intellectual process, to develop a conception of education in which democratic processes were central. Herbert A. Thelen's Education and the Human Quest and Donald Oliver and James Shaver's Teaching Public Issues in the High School are others who have written of this metaphor and its application.

Joyce and Weil (1972) emphasize the relationship of the person to his society or his direct relationships with other people. They reflect

a view of human nature which gives priority to social relations and the creation of a better society; and, they see the processes by which reality is socially negotiated as vitally important in the life of man. With respect to goals, the improvement of the individual's ability to relate to others is very important. There is an emphasis on the personal psychology and the emotional life of the individual. A heavy emphasis is also placed on social relations: how individuals conceptualize and relate to each other as people and how they relate to their society as a social institution. Each man constructs knowledge by reflecting on his own experience. The result is pluralistic and the essence of the democratic process is the creation of interaction among the unique, personal worlds of individuals so that a shared reality is created. This shared reality would embrace the unique personal worlds and encourage their growth while providing for common investigation, growth, and governance (Joyce and Weil 1972).

McNeil (1977:5) breaks the cultural metaphor into five elements:

"1. Participation. There is consent, power-sharing, negotiations, and joint responsibility by co-participants. It is essentially nonauthoritarian and not unilateral.

2. Integration. There is interaction, interpenetration, and integration of thinking, feelings and action.

3. Relevance. The subject matter is closely related to the basic needs and lives of the participants and is significant to them, both emotionally and intellectually.

4. Self. The self is a legitimate object of learning.

5. Goal. The social goal or purpose is to develop the whole person within a human society.

Sarason (1971) sees the school as a sub-culture of the culture. He portrays the school as a set of structured interacting roles in a tradition-dominated social setting. Goodlad (1975:205) asserts that what is needed is an ecological model of education. "An ecological community in which

both living and non-living things constitute a system and interact within it." The school culture, community, and school-community are all part of an ecosystem. Everyone is seen as within the whole ecosystem. There is nobody on the outside trying to do something to someone on the inside. Goodlad's society is oriented homeostatically towards maintenance of a stable environment. All are parts of the same system or ecosystem. Every person and every thing has consequences for all other persons and things. Nothing, according to Goodlad (1975), is inconsequential. Individuality and uniqueness exists but function and are understood in relation to the whole and to the other parts of the whole.

House (1979) writes that the cultural metaphor assumes a more fragmented society, more value consensus within groups but less consensus among social groups so that groups must be regarded as subcultures. Separate parts of the system are seen as more different than alike. They must be approached cautiously as one would approach foreign culture. This cultural metaphor is suggestive of societal fragmentation. The separate groups neither share values nor are they certain about another groups value system. Even common agreement is problematic since two different cultures may not understand each other. The possibilities for misunderstanding multiply. One must be concerned about the unanticipated effects of an innovation in an unknown culture. Action becomes difficult (House 1979).

As the cultural metaphor develops, House (1979) expects to see anthropological change concepts such as cultural ecology, environmental adaptation and multilinear evolution brought into play to explain educational change. Since culture is a unitary concept, the cultural metaphor can explain

conflict only by portraying a clash between two distinct cultures or by utilizing concepts such as moiety interaction.

Bennis, Benne, and Chin (1971) state that the strategies of the cultural metaphor are the normative-re-educative. The strategies that are used within this metaphor are built upon assumptions about human motivation. The rationality and intelligence of men are not denied. Patterns of actions and practice are supported by socio-cultural norms and by commitment of individuals to these norms. Change, according to this metaphor, will occur as persons come to change their normative orientations from old patterns and develop commitments to new ones. Changes in normative orientations, continues Bennis, Benne, and Chin (1971), involve changes in attitudes, values, skills and significant relationships, not just changes in knowledge, information or intellectual rationales for action and practice.

This metaphor, says Bennis, Benne, and Chin (1971), assumes that men are inherently active in quest of impulse and in need of satisfaction. The relation between man and his environment is essentially transactional. Man, the organism, does not passively await given stimuli from his environment in order to respond. Intelligence arises in the process of shaping organism-environmental relations towards more adequate fitting and joining or organismic demands and environment resources.

Intelligence is social, rather than narrowly individual. Men are guided in their action by socially funded and communicated meaning, norms, and institutions - by normative culture. At a personal level, men are guided by internalized meaning, habits, and values, continue Bennis, Benne, and Chin. Changes in patterns of action are changes at the personal level, in habits and values as well. Man must participate in his own

re-education if he is to be re-educated at all. Some of the common elements of the cultural metaphor, according to Bennis, Benne, and Chin (1971) are:

1. The cultural metaphor emphasizes the adopter and man's involvement in working out programs of change and improvement for himself.
2. The cultural metaphor does not assume the problem must be one of client's inadequate technical information, but it may be a problem in the attitudes, values, norms and the external and internal relationships of the client's system.
3. The cultural metaphor states that the change agent must learn to intervene mutually along with the client into efforts to define and solve the client's problems.
4. The cultural metaphor states that the non-conscious elements which impede problem solving must be brought into consciousness and publically examined and reconstructed.
5. The cultural metaphor states that the methods and concepts of the behavioral sciences are resources which the change agent and client learn to use selectively, relevantly and appropriately in learning to deal with problems.

Bennis, Benne, and Chin assert that the change agent seeks to avoid manipulation and indoctrination of the client. Those committed to this change approach tend to see the person as the basic unit of social organization. Persons are seen as capable of creative, life-affirming, self-respecting responses, choices and actions. People must make a conscious effort to learn from their experiences of self-direction if change is to

be maintained and continued. This is a personal growth appraoch.

The assumption here, according to Bennis, Benne, and Chin (1971) is that the adopter is not passive, waiting for solutions from without, but rather is in active search of a solution to problems. The strategy is based on a psychotherapeutic model of change-agent (counsellor) and adopter (client) in which, with the collaboration of the agent, the client works out changes for himself. Therefore, the counsellor needs less technical training. There are two principle objectives says Benenis, Benne, and Chin (1971). These are:

1. to improve the problem-solving capacities of the client or adopting system, in particular the human relationships as these bear on the functioning of the system itself.
2. to bring self-clarity and personal development to the individuals within the system, on the premise that personal change will lead eventually to organizational changes.

Summary of the Chapter

There are two aspects of metaphor as a process of thought; one is the awareness of the presence of metaphor or sort-crossing; and second is the avoidance of being used by metaphor or sort-trespassing (Turbayne 1970). Schon (1963, 1979) states that metaphors are central to how we think about the world; how we make sense of reality, how we define problems and later how we solve them. He considers metaphors basic to our perspectives on the world. The direction of problem-solving is decided by generative metaphors that we utilize when describing the problem. Being aware of generative metaphors can become tools of social inquiry and reflection when we attempt to solve problems.

The technological metaphor views man as rational and who will change when given enough facts; change is a series of orderly steps; and technology can solve man's problems. The political metaphor views man as one who can be changed under the tutelage of a change-agent; conflict leads to change and power is the power-coercive ingredient of all human action. The cultural metaphor views society as an ecosystem where all men are equal. Man constructs his knowledge by reflecting on his own experiences and man needs to be an active participant in his own re-education. The following chart summarizes in more detail the three metaphors under various headings. See Figure 2, p. 53. The authors House (1979); Bennis, Benne and Chin (1971); Havelock (1970); Johnson (1976); Lauer (1973); and Schon (1979) were utilized to understand the three metaphors.

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Figure 2

A Summary of the Three Metaphors

Adopted from Kurt E. Olmosk (1972:191-2)

	Technological Metaphor	Political Metaphor	Cultural Metaphor
When introduced into the educational system	1960's	1970's	1970's
Basic assumptions	-everyone is pursuing a common end and that the context is not a problem. -everyone is reasonable and that what they need to make change are the essential elements; research, development and diffusion. If the environment or surroundings change, people have to change. People are rational. If you present enough facts to people, they will change. Man is seen as an extension of the machine. Invention and innovation follows a series of orderly steps. Technology is the Savior. Progress is seen as a linear development.	Not all is harmonious There may be problems and value flicts. -innovation is a part of a problem-solving process which goes on inside the user If all the really influential people agree to do something, it will be done. Conflict leads to change. If we have enough money or material wealth, we can buy anything or any change we want. Most people do not want to change If we can mobilize enough anger and force people, we'll look at problems around us, the required changes will be made. Not everyone wants the same thing; therefore must have bargaining and compromise. There is enough value consensus that compromise can be achieved.	Society if more fragmental - has more values consensus within groups but less consensus among social groups so that groups must be regarded as subcultures. Most problems are complex and overdetermined. A combination of approaches is usually required. If we have a good warm interpersonal relation, all other problems will be minor. Most problems are complex and overdetermined. A combination of approaches is usually required. Change involves change in attitudes, skills, values, and relationships. Man is not passive. Man must participate in his own re-education.
Inclusion	based on possession of technical skills and marketable resources. based on possession of knowledge and facts.	based on ability to deal with and use of conflict, power, coercion. based on possession of marketable resources.	get everybody in
Influence	based on specialized knowledge and expertise. by changing structure or task environment	based on level and breadth of perceived power, perceived wealth by feat of authority and threat of punishment. by non-violent argument.	everyone is equal based on knowledge and the degree to which decision will effect them.
Perceptual approach	task relevance and rationality, analytical and detached	narrow belief in "Truth" exploit for use of power structure. stereotype Ignore individual differences unless they relate to power.	ecclectic but situation centered. Accepts all. Shuts out none.
Emotional needs	autonomy, rationality, clarity, structure	control, attention, rationality, status and security expression of anger, expression of self.	warmth, love and trust emotional and intellectual integration.
good at	being aware of surroundings and/or environment Finding causes, Presenting relevant information	keeping order, forcing people to look at issues they may not want to acknowledge. Gaining attention and publicity Mobilizing power, implementing decisions.	using as much information as possible. mobilizing initial energy.
chronic problems	Implementing findings Mobilizing energy. Getting people to pay attention or read reports. Time consuming. Gaining acceptance for change. Dealing with unexpected consequences. Few people can control structure.	Maintaining change and/or satisfaction. Few people or groups have unlimited resources. Maintaining credibility. Fighting backlash. Finding alternatives Rebellion. Can never relax.	Financial support. Actual implementation of decisions. Maintaining long run commitment. Making itself understood. Not appearing "wishy-washy."
Questions suppressed	How well people feel about it? How do I feel about results? How should results be used?	Who should "really" make decisions? Is it "right?" Is anything in opponents argument worthwhile? Is my action consistent with my value system? Most feelings	How should I "really" do it? Do you really know what you are doing. What's in it for me? Competence? Individual differences?
Most often used by	Outsiders, People in staff positions. Top management, Department of Education. Educational Program Development Services	Corporations; The very wealthy Those in power; Revolutionary students. The poor Unions, military, police, Department of Education, Central Office of School Boards, School Boards.	Groups with limited power. Churches, Volunteer organizations, human relation consultants, organization development consultants. Teachers in the classrooms. T.-Groups, Teacher Centres.
Strategies most often used	rational-empirical	power-coercive, re-educative	normative - re-educative
Writers	Rogers Miles Clark and Guba Havelock; Bennis, Benne, and Chin, Schön, Lauer, Johnson, House	Bennis, Benne and Chin Likert, McGregor, Marx, Mills Maslow, Lauer, Johnson, House	Miles Bennis, Benne and Chin Skinner, Joyce and Weil Hayakawa, Oliver and Shaver John Dewey, Lock, Plato, Aristotle, More, Augustine, McNeil, Sarason, House

(House 1979; Bennis, Benne, and Chin 1969, 1971; Havelock 1970; Johnson 1976, Lauer 1973; Schön 1979)

Chapter III

Three Inservice Models

Introduction

Three models of inservice will be examined in this chapter. After an examination of the literature, the researcher has established that prominent writers including Rogers, House, Havelock, MacDonald and Walker, Huberman, Becker and Maclure, Joyce and Weil, and Bhola discuss three models of innovation. Inservice is one vehicle in the implementation stage of innovation. The same models of innovation are employed by inservice. Although these writers do not all use the same lables, they essentially concur that the three models of innovation are: Research, Development and Diffusion (R.D. and D.), Problem Solving (P-S), and Social Interaction (S-I).

Each of the three inservice models is an extension of each of three metaphoric paradigms discussed in Chapter II. The intention of the study is not to suggest which metaphor or which inservice is the "most appropriate", the "most effective" or the "most successful". Lauer (1973) claims that no one model of change is universally applicable to every situation. Each situation must be carefully assessed before an appropriate model of inservice is selected. In fact, a series of models may be called for in order to initiate an innovation. Lauer suggests that three questions be answered before the model is selected for implementation:

1. What is the target of the change efforts?
2. Who will effect the change?
3. What method will be employed?

Note: Because of the emphasis of this study, the term "innovation" has been replaced by the term "inservice"; although, many of the writers are discussing the innovation process.

At present, it would appear that a model of innovation may also be implemented on the basis of finance or power control with total disregard for its chances of success. One intention of this study is to help innovation planners, inservice planners, government agencies, change agents - internal or external, and teachers' groups become aware of Lauer's three questions before deciding which one/ones of the innovation models is/are to be used to guide the implementation of change.

Before each of the three innovation models are discussed individually, the differences among them can be brought out by this analogy. If you want a book shelf, you can of course, select a ready-made one from a furniture shop (the R.D. and D. model). Or you can make it yourself, armed only with some planks of wood, a tool kit and perhaps a do-it-yourself manual (the social-interaction model). Or you can send away for an assembly kit in which the various parts, and the types of finish, can be specified by the customer, who assembles the product himself but has a good deal of the preliminary work done for him (the problem-solving model) (Becker, Maclure, 1978).

The Research, Development and Diffusion model of Inservice (R.D. and D.)

"The history of the Research, Development and Diffusion model of innovation goes back at least 20 years to the launching of Sputnik and to the attacks on the school curriculum by university scholars (House 1979;2)." The space race with Russia justified a curriculum reform movement that was

elitist and dedicated to the pursuits of excellence (MacDonald, Walker 1976). This model, writes House (1979), goes back to the heady optimism and supreme confidence of the post war era, during the Kennedy years, when it was believed that research for new knowledge and the proper technologizing and dissemination of that knowledge could solve technical, societal, or any problem that might be encountered. Solving problems was primarily a matter of attention, application, and money. A problem could be solved with the ministering and management of appropriate resources, whether it was solving the Vietnam war or educational problems (House 1974).

Goals for schools, however, reflect much of what is immediate in the surrounding society and are designed to be corrective (Goodlad 1975:12). Research funds for industry and the military far exceed funds for education. When educators were under pressure to make changes in the educational system, and their own research and development activities had been inadequate to their problems, they often reached over and borrowed research theory and method from other fields (Johnson 1976:6-7).

House (1974) states that when problems became acute enough, like the education problem of the 1960's, it was believed that one could always fix them by tne application of resources and technological know-how. A package could be mass produced and widely disseminated. Such solutions are relatively inexpensive per unit and highly profitable for those producing them. This system is interested in producing goods rather than services; however, when services are produced, they are bureaucratic rather than personal. The producer, continues House (1974), controls the process and the type of innovation. This became known as the "research, development, diffusion" approach to inservice - the Doctrine of Transfer-

ability (House 1974).

The "Clark-Guba" model (1965) was the first innovation model borrowed from industry and the military. This model assumes:

1. that research was of primary importance and proposed, unquestioningly to get research findings to use (MacDonald and Walker 1976).
2. that dissemination and implementation are technical problems giving rise to purely technical solutions (MacDonald and Walker 1976).
3. that a central expert is not available to the average teacher (Becker and Maclure 1978).
4. that learning materials could be engineered in the way that a new household product could be produced (Becker and Maclure 1978).
5. that knowledge was something that could be delivered in "packages" and was largely independent of personal interaction between teachers and those taught (Becker and Maclure 1978).

The remainder of the assumptions for the Clark and Guba model are from Havelock and Havelock (1973:12).

6. "There should be a rational sequence (for the developer) in the evolution and application of an innovation. This sequence should include research, development and packaging before mass dissemination takes place.
7. There has to be planning, usually on a massive scale over a long period of time.
8. There has to be a division and co-ordination of labor to be in accord with the rational sequence and the planning.
9. A more-or-less passive but rational consumer who will accept and

adopt the innovation offered to him in the right place, at the right time, and in the right form.

10. Proponents of this viewpoint accept the fact of a high initial development cost prior to any dissemination activity because of the anticipated long-term benefits in efficiency and quality of the innovation and its suitability for mass audience dissemination (Havelock, Havelock 1973:12)."

Becker and Maclure (1978) maintain the reasoning behind the R.D. and D. model is intuitively attractive for education. In simplified terms, it first identifies the underlying aims of teaching that subject with which development is concerned. Next, it considers what is known about the best method of achieving those aims. Finally, it applies these methods to the presentation of the required subject content. Appropriate teaching materials can then be devised, tried out, revised in the light of the trials and made generally available. The resulting product, based on agreed aims, and perfected by field trials, must be virtually certain to meet classroom needs (Becker and Maclure 1978:65).

Bhola (1977) states the Research, Development and Diffusion model is rational in the sense that it does not necessarily concern itself with the politics of change or with the sociology of systems within which changes are initiated. People are assumed reasonable and need essential elements - research, development, and diffusion, in order to spur change. Research-based knowledge, Bhola (1977) continues, must be available to suggest different approaches to existing problems. There are three requirements for change:

1. educational research - this research must go through a process of development through which practical applications for it are found.
2. educational development - the research must be translated into instructional materials and approaches.
3. systematic diffusion of what is developed - the developer must bring the product of development - an innovation - to the attention of practitioners and client group.

Maclure and Walker (1976) assert that the R.D. and D. model looks at the point of view of the originator of an innovation and begins with the formulation of a problem based on a presumed receiver. That is, the initiative in setting the problem, however, is taken by the developer, not the receiver. Change is depicted as an orderly sequence which begins with the identification of a problem. The receiver is referred to as the "target system". The client system may range in size from an individual person to an entire system or nation. The phrase "target system" and "plans of attack" are terms from the military metaphor. The R.D. and D. model was not only a model of change; it was also a model for change, a blue print for the future (MacDonald, Walker 1976); a model for attacking change.

Schön (1971) calls the R.D. and D. model a "centre-periphery" model. Centre refers to the administration, school boards or government agencies, while periphery are the practitioners, the teachers. Schön's model rests on three basic assumptions:

1. the innovation exists, fully realized in its essentials, prior to its diffusion.
2. diffusion is the movement of an innovation from a centre out to its ultimate users.

3. directed diffusion is a centrally managed process of dissemination, training, and the provision of resources and incentives.

The effectiveness of a centre-periphery system, argues Schön (1971), depends in part on the level of resources at the centre, the number of points at the periphery, the length of the spokes through which diffusion takes place, and the energy required to gain a new adoption. Failure takes the form of simple ineffectiveness in diffusion, distortion of the message, or disintegration of the system as a whole.

Advantages of the Research, Development and Diffusion Model

To many people, information is the primary business of education. This particular model emphasizes content, which might explain why it is the most popular inservice model. The benefits of this model are its focus on content, relevant information, and skills. If this is the objective of an inservice model, then this is the choice model. However, it is to be remembered that, unless information is assimilated into the "life-world" of an individual, it is of little or no value.

Problems and Evaluation of the R.D. and D. Model

House (1974:221) quotes Havelock (1971) as criticizing the R.D. and D. model as "over-rational, over-idealized, excessively research-oriented, and inadequately user-oriented." House also states that the materials and programs that did emerge were few, often poor in quality, and not attuned to individual school needs. These products, with few exceptions, were mostly ignored by school personnel.

"The very essence of the R.D. and D. approach is control ... said House (1974:223)." This paradigm treats the practitioner as passive and

slightly resistant. But being constrained is not the same as being passive. The practitioner is placed in the position of a consumer who is going to be sold a piece of goods which he has the option either to buy to reject. The practitioner in his classroom is beyond the power of almost everyone and he often chooses not to buy.

House (1974) writes, the R.D. and D. model assumes that the innovation will be invented, developed, and passed along the linear chain. This model might work if all the actors shared the same values and end results. That is, they are activity involved in inventing and diffusing the product. But, they are not. The direction and co-ordination of this model require a great deal of global planning, and it is this facet that appeals most to government officials. Massive planning does not, continues House (1974), compel people to implement the plans. When plans deviate from people's self-interest and the way they perceive the world, they are merely pieces of paper. The research, development, diffusion paradigm is rational then only from the viewpoint of global government planners. It is not necessarily rational from the point of view of the consumer. "In other words that what is rational for one man seems irrational to another (House 1974:222-224)."

Becker and Maclure's (1978) evaluation of the R.D. and D. model examines each of the successive stages of the model. It is by no means easy to identify aims or even to agree on the function of any given subject in the curriculum. To find a middle way between being general and vacuous and specific and stultifying is far from easy.

Having decided on aims, Becker and Maclure (1978) continue, the R.D. and D. model calls on research to reveal the best teaching method. But we know very little about how people learn. Much of the useful in-

formation about the best ways to help pupils acquire particular types of intellectual accomplishment is intuitive or anecdotal rather than scientific and systematic. Even if a development team had managed to set out an appropriate statement of its aim and a teaching approach which relates to those aims, the aims then have to be clothed in practical form.

The trial stage of the R.D. and D. model, write Becker and Maclure (1978), is intended to compensate for any errors of judgement which might have occurred in the previous stages. By trying out draft materials in the classroom and carefully collecting feedback information on what works and what does not, it should be possible to turn a working prototype into a satisfactory finished product. However, most trial stages are simply too short to enable the developers to stand back and take an overall view of the effects of the process. Also, the teachers may even be unfamiliar with the notion of curricular objectives.

Becker and Maclure (1978) assert that diffusion, however, generally reveals the major weakness of any product. The R.D. and D. model assumes once a set of materials has been perfected through to trial and revision that there is little that remains to be done beyond making the materials available to schools. However, the classroom materials failed to carry the message; and this began to raise questions about whether the materials were really the appropriate medium after all.

Problem-Solving Model (P-S)

The problem-solving model is built around the user of the inservice and assumes that inservice is a part of a problem-solving process which

occurs within the user (Havelock and Havelock 1973:8). Huberman (1973:63) writes that this model assumes that the user has a definite need and that the inservice will satisfy it. Thus the process is from the diagnosis of a need to trial and adoption. Very often an external change-agent, writes Huberman (1973), is required to counsel individuals on possible solutions and implementations strategies, but the emphasis is on client-centered collaboration rather than on manipulation from without, i.e., an external change agent (Huberman 1973). He asserts that there are two processes at work. The first is one of re-education, the becoming aware of and correcting inefficient or dysfunctional habits and attitudes; the second is one of educational development, being designed to add new skills, knowledge, practices or attitudes to a person ro group.

Huberman (1973) views the principle characteristics of the problem-solving model as:

1. an emphasis on solving problems through internal restructuring, where the receiver is directly involved in the situation.
2. frequent use of a temporary "change-agent" or consultant from outside.
3. concern with attitude change, re-adjustment of interpersonal relations and communications.

Huberman (1973:63) states that the change process may be initiated either by the receiver or by the change-agent, but in either case the receiver must want to change and must participate fully in bringing the change about if it is to be successful. Huberman views the perspective of the change agent or consultant as coming into the organization (client-system) where the pattern for change is for the:

1. development of a need for change
2. establishment of a change relationship between agent and client
3. clarification or diagnosis of client's system's problem
4. examination of alternative routes and goals, establishing goals and action required
5. transformation of intentions into actual change efforts
6. generalization and stabilization of change
7. achieving a terminal relationship

Lewin (1964) in his studies of group decision and social change, views the problem-solving model in three phases:

1. unfreezing - realizing the need for change.
2. moving - the activities involved in implementing change.
3. freezing - fixing the new behavior in the life of the group.

Havelock (1970) views the rational problem-solving material in two ways. One way is to see it from the point of view of the people who are being changed, and the other is to see it from the point of someone who is trying to change them. According to Havelock (1970), every person, every group and every social organization necessarily has some sort of problem-solving process in order to survive in a changing world. This does not mean that everyone is an expert problem solver, nor does it mean that everyone finds innovative solutions when he has a problem, but everyone does develop some sort of procedure for coping with change. Havelock (1970) calls this model the reflexive, trial-and-error variety:

1. a decision to do something is made.
2. an active attempt to define what the problem is.
3. a search to provide potential solutions

4. an application of one or more potential solutions to see if it will satisfy the need.

Most of the time, however, most people do not want change. They want to keep things the way they are even when outsiders know that change is required. For that reason, says Havelock (1970), some change agents are needed to overcome inertia, to prod and pressure the system and the people to be less complacent and to start working on its serious problems.

Regardless of his formal job title and his position, there are three primary ways in which a person can act as a change agent, says Havelock (1970). He can be:

1. a catalyst
2. a solution giver
3. a process helper.

A change agent, continues Havelock (1970), uses a psychotherapeutic model in which, with the collaboration of the agent, the client works out his changes for himself. The aim requires less technical training and the emphasis focuses on the changing attitudes and values. The two principle objectives are:

1. to emphasize the problem-solving capacities of the client or adopting system, in particular, the human relationships.
2. to bring self-clarity and personal development to the individuals within the system, on the premise that personal changes will lead eventually to organizational changes.

Havelock and Havelock (1973:8-9) maintain there are at least five points that are generally stressed by advocates of this model. They are:

"1. User needs are the paramount consideration and the only acceptable stance for the change agent.
2. Diagnosis of need always has to be an integral part of the total process.
3. The outside change agent should be non-directive, rarely, if ever, violating the integrity of the user by placing himself in a directive or expert status.
4. The internal resources, i.e. those resources already exsiting and easily accessible within the client system, should be fully utilized.
5. Self-initiated and self-applied innovation will have the strongest user commitment and the best changes for long-term survival."

Rogers (1962) refers to the problem-solving model as the adoption process. This process may be artibrarily broken down into stages for conceptual purposes:

1. Awareness stage - the client is exposed to the innovation but lacks complete information about it.
2. Interest stage - the client becomes interested in the innovation and seeks additional information about it.
3. Evaluation stage - the client mentally applies the inservice to his present and anticipated future situation, and then decides whether to try it.
4. Trial stage - the client uses the inservice on a small scale in order to determine its utility in his own situation
5. Adoption stage - the client decides to continue the full use of the inservice.

Rogers and Shoemaker (1971) assert that the five stages do not always occur in the specified order, and some of them may (especially the trial stage) be skipped. Evaluation actually occurs throughout the process, rather than just at one of the five stages. Rogers (1962) defines a change agent as a professional person who attempts to influence adoption decision in a direction that he feels is desirable. In most cases, a change agent

seeks to secure the adoption of new ideas, but he may also attempt to slow the diffusion or prevent the adoption of certain innovations. Rogers states that the change agent functions as a communicating link between the bureaucracy system and the client system. The change agent has a responsibility for the consequences of the inservice he introduces. Rogers (1962:283) says that a change-agent serves as a communication link between a professional system and his client system. The seven roles filled by the change-agent according to Rogers and Shoemaker (1971:248) are:

"1. he develops a need for change on the part of his client.
2. establishes a change relationship with them.
3. diagnoses their problems.
4. creates intent to change in his clients.
5. translates this intent into action.
6. stabilizes change and prevents discontinuances,
7. achieves a terminal relationship with his client."

Bennis, Benne, and Chin (1961) state that problem-solving should be collaborative. All parts of the system ideally co-operate in identifying change. Collaboration should be task oriented rather than oriented to the maintenance of the prestige of some parts of the system over other parts. Problem-solving should be educational and/or therapeutic for individual participants involved in inservice. The goal of collaboration is to enable the community to incorporate social science knowledge and techniques in order that it may cope more adequately with its own problems. One of the distinguishing features of the problem-solving model, continues Bennis, Benne, and Chin (1961), is the collaboration element that exists between change-agent and client. The outcome hinges to a great extent on the relationship that becomes established between the giver, and change-agent, or the receiver and client - how well it is

understood by each, its control and dependency aspect, and how open it is for examination and reconstruction by both parties. Bennis, Benne, and Chin (1961) assert that this collaborative relationship between client and change-agent may, in itself, provide a crucible for understanding the problem the client faces. The relationship should provide a cognitive support. Collaboration is a necessary ingredient of inservice because it generates the necessary trust that facilitates the collection and interpretation of meaningful data, but also it can become a qua relationship that is needed to overcome some of the strong fears and resistance to inservice in the client-system (Bennis, Benne, Chin 1961).

Havelock (1970) views the problem-solving model as beginning with an initial disturbance, pressure from the inside or outside. The view of crisis in the problem-solving model is seen by Havelock and Havelock (1973:143) when political groups, borads of education, and top administrators seek to maintain and/or maximize their power. Policy decisions are likely to be made in an authoritarian manner with little or no collaboration with the user groups of the client system. Miles (1964) proposes that social change is a matter of the application of personal or group power based upon prestige, competence, control of money and resources, legal authority, policy, precedent, custom, or co-operation and collaboration.

Educational inservice is, for House (1974), a product of the interaction of factional groups competing for resources in attempts to influence and control each other and their own members. The problem-solving model of inservice is an attempt by the centre to capture control of the periphery. House views politics and power relationships as key concepts

in the analysis of the change process. House (1974) feels the centre-periphery control system will succeed. He says that it is difficult to see how education can be personalized because the large education systems demand the production of standardized materials for a mass market, because the centre will continue to control "the power" and create conflict. This model is "linear" view of educational change according to House (1974). It has become the major paradigm for thinking of educational change in North America.

Advantages of the Problem-Solving Model

This model focuses on control or keeping order, goals and means. It forces people to look at issues they may not want to acknowledge. Because government agencies and other power groups are able to mobilize the power, gain attention and publicize the issue, they utilize this model to implement their decisions. These same agencies have the economic and political powers that are needed to research, develop and diffuse solutions for educational problems. For example, Alberta's Department of Education can avail themselves of educators from all over the province and elsewhere; they can draw on information from a wide range of sources; they can develop and distribute visual materials to all schools in the province cheaper; and they can analyze, evaluate and recommend materials (EPIE) cheaper than small groups of teachers involved in the Social-Interaction model.

Problems of the Problem-Solving Model

Some limitations, say Bennis, Benne, and Chin (1961), can be recognized in the strategy of the second development model. In its emphasis on producing materials to meet teachers' existing needs, and leaving teachers to put their own interpretations on such materials, the strategy goes along with the current teaching traditions rather than attempting to make any radical changes. In designing its materials to be all things to all people, this model misses the opportunity to link curriculum development more closely to inservice training.

The main difficulty with the P-S model says Bennis, Benne, and Chin (1961) is, however, embodied in the very conception of a problem-solving approach. Ideally, such an approach should imply a close investigation of each client shcool's particular needs, and the specific solution geared to those needs. In fact, resources for curriculum development are likely to be far too limited for such a close client-consultant relationship between development teams and individual schools or teacher. The P-S model would be much too labor intensive, alleges Bennis, Benne, and Chin (1961).

Social-Interaction Model (S-I)

Huberman (1973) refers to this model as the social interaction model because the potential adopter generally hears of the new practice and decides to use it in consultation with other persons.

A variation of this paradigm is continuous self-renewal, which is an attempt to look at change in organizations as the same process which an individual follows in constructive thinking and problem-solving. This

process involves, continues Huberman (1973):

1. sensing - external trends and resources, internal problems.
2. screening - deciding whether the items merit further investigation, setting priorities.
3. diagnosing - analysing the internal problem or new practice.
4. introducing - strategy planning.
5. operating on an experimental basis.
6. evaluating the results.
7. revising.

In this process, the unit of analysis is the individual receiver, with the focus on the receiver's perception of a response to knowledge coming from without. The most effective means of spreading information about innovation is by means of personal contact. The key to adoption is the social interaction among members of the adopting group, writes Huberman (1973).

The adoption sequence is seen by Huberman (1973) as:

1. Awareness - the individual is exposed to the innovation: awareness creates a need for the inservice.
2. Interest - the individual seeks information about the innovation.
3. Evaluation - the individual applies the innovation to his present and anticipated situation, and decides whether or not to try it.
4. Trial - the individual uses the innovation on a small scale, in order to judge its utility in his own situation.
5. Adoption - the results of the trial are considered, after which the decision is made to adopt or reject the innovation.

At each stage, continues Huberman (1973), the potential adopter gen-

erally turns to different sources of information, i.e. colleagues, friends, and professional sources. The key feature is the relation of leader to group. Psychologists have shown that identification in a group, or with a group leader, plays an important role in diffusing new ideas since people will adopt and maintain attitudes and behaviors which they associate with their "reference" group. Therefore, says Huberman (1973), diffusion and adoption of the social-interaction model emphasizes the importance of inter-personal networks of information, of opinion leadership, personal contact and social integration. The focus is on the user or communicator, and a variety of dissemination strategies (Huberman 1973). Because the structure is loose, it adopts shifts of meaningful direction and is flexible enough to regroup around the "new". There is not enough time to change the social network into an organization before a new transformation occurs (MacDonald, Walker 1976).

Becker and Maclure (1978) write that this model is based on a number of assumptions:

1. Once the work of the local groups, perpheries, gathered momentum, it would need very little in the way of continued support.
2. Every teacher has the time, the talents and the motivation to take an active part in the developing of new teaching approaches and the classroom materials that go with them, and that he is prepared to put the necessary effort into contributing to a common pool of ideas and experiences.
3. Every teacher can "do his own thing" in curriculum development, at least in the sense in which the term is normally used.
4. Local networks of teachers' centres, once stimulated into action

by a central team, will continue not only to generate new ideas, but to circulate these amongst themselves and to build up a common bank of curriculum resources.

To use Schön's (1971) terminology, social interaction is the periphery-periphery model, the teacher-teacher model. Its characteristics are:

1. It has no clearly established centre: centres appear, reach a peak, and disappear to be replaced by new centres within quite short periods of time.
2. There is no stable, centrally established message: the message shifts and evolves, producing a family of related messages.
3. The system of the movement cannot be described as centre-periphery: centres rise and fall, messages change. But the movement is a diffusing, learning system in which both primary and secondary messages evolve rapidly, along with the organization of diffusion itself.

Havelock (1971, 1973) poses five generalizations about the social-interaction model. They are:

1. The individual user or adopter belongs to a network of social relations which largely influences his adoption behavior.
2. The individual's place in the network (centrality, peripherality, isolation) is a good predictor of his rate of acceptance of new ideas.
3. Informal personal contact is a vital part of the influence and adoption process.
4. Group membership and reference group identification are major predictors of the individual adoption.

5. The rate of diffusion through a social system follows a predictable S-curve pattern (a very slow beginning followed by a period of very rapid diffusion, followed in turn by a long late-adopter or "laggard" period (Havelock 1973).

Huberman (1973) states that the social interaction metaphor emphasizes the aspect of diffusion, the movement of messages from person to person and system to system. It stresses the importance of inter-personal networks of information, opinion leadership, personal contact, and social integration. The metaphor assumes that each member in the system will proceed through the awareness-adoption cycle using a process of social communication with his colleagues.

The diffusion of the innovation depends greatly upon the channels of communications within the receiver group, since information about the innovation is transmitted primarily through the social interaction of the group members (Huberman 1973). The model focuses on the receiver's perception of and response to knowledge from without.

Advantages of the Social-Interaction Model

This model is a professional development and personal growth model. It is interested in the development of the mind and the development of the self as well as the learning of academic material. It views change as a democratic process where reality is socially negotiated. Because of its ability to draw on the initial energy of the group and the process of group interaction, this model involves a diverse audience of teachers, curriculum developers and material makers. Small groups of people who define a problem and attempt to solve the problem together are the basis

of this model. Because the group is involved voluntarily in initiating change, its contingency for actual change is very high.

Problems of the S-I Model

This model is not without its problems. Becker and Maclure (1978) say that the first limitation concerns the neutrality of the central team. To reflect the best existing practice, the central team has to make judgements on what is the best. It is very easy for the periphery to form its own views and certain values and ideaologies that could be at the expense of provincial curriculum. The periphery teams may use only examples of current practices rather than using alternative resources and teaching suggestions, because they do not have these other alternatives (Becker and Maclure 1978).

Often the enthusiasts, declare Becker and Maclure (1978), who take part in local development activity are too few and their production too unrepresentative of the ordinary teacher's needs for them to be focal points of development. Moreover, because their resources have been much more limited, the quality of what they have produced has tended to compare unfavorably with that of a well-funded R.D. and D. project manned by a full-time team often recruited on a national basis.

The local networks, say Becker and Maclure (1978), once set up, have not proved to be self-sustaining. Once outside support is withdrawn, they tend to disintegrate into small isolated pockets of activists. Not every teacher has the time, the talent, or the motivation to take an active part in developing new teaching approaches and the classroom materials that go with them. Nor is he prepared to put in the necessary efforts

into contributing to a common pool of ideas and experiences (Becker and Maclure 1978).

Becker and Maclure (1978) write that to develop a highly sequential program which students can work through largely on their own can demand at least forty hours of preparation for every hour of classroom use. So another deficiency of this model is time. Not every teacher, even if he had the time, would possess the necessary combination of skills to undertake an effective redesign of the curriculum in a given subject. The job, state Becker and Maclure, requires a complex blend of creative imagination, technical expertise in ways of presenting information and ideas, a wide knowledge of the subject matter, and an appreciation of the pupils' interests and the way in which they can best be helped to learn. These talents are combined in a few individuals. Only a relatively small proportion of teachers will in practice want to involve themselves actively in the work of innovation (Becker and Maclure).

Another limitation, mentions Becker and Maclure, of the social-interaction model is that there is no established tradition of rapid communication between practitioners in different localities; therefore, once the central team has been disbanded, the small periphery also disband except for a few isolated groups. "The social-interaction model is flawed by the romance illusion (Becker and Maclure 1978:74)."

Summary of Chapter

Why is the diffusion of innovation through inservice education programs weak? Because the question of how new ideas and practices gain wide spread adoption from their point of origin is central to any system of planned change. The enduring problem that has plagued the sponsors

and planners of curriculum innovation is not the problem of creation, but the problem of impact, the problem of diffusion. Neither the schools nor the teachers apparently have been transformed by all the organized, systematized, specialized efforts of the professional innovator. Miles (1964) claims that there is no adequate theory of social change. Rogers and Shoemaker (1971) explain that the process of social change consists of three sequential steps:

1. Invention is the process by which new ideas are created or developed.
2. Diffusion is the process by which these new ideas are communicated to the members of a social system.
3. Consequences are the changes that occur within a social system as a result of the adoption or rejection of the innovation.

Change, continues Roger and Shoemaker (1971), occurs when a new ideas's use or rejection has an effect. Social change is therefore an effect of communication.

Separately, each of the three models illuminates one perspective of the innovation process and suggests techniques for accelerating changes. The research, development and diffusion model concentrates on the origins of the innovator, the problem-solving model on the dynamics of the individual adoption, and the social-interaction model on wide diffusion throughout an organization or an educational system. The R.D. and D. model indicates that we lack institutional structures for designing and developing new ideas and materials; the problem-solving model shows the lack of processes for implementing changes once they are undertaken; the social interaction models shows that we have few vehicles for dissemination of

an innovation to a larger public. None of these models is fully developed in practice; nor has any attempt been made to combine the three perspectives into a general paradigm. The following chart summarizes in more detail the three inservice models under various headings. See Figure 3, p. 79.

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Adopted from:
Becker and Maclure
(1978:79)

Figure 3

Summary of the Inservice Models

	R.D. and D. model	P-S model	S-I model
When introduced into education	1960's	1970's	1970's
Basic assumptions	research is of primary importance; implementation is a technical problem; the teacher is a passive adopter, non-expert; knowledge can be packaged; government is best able to "long range plan"; there has to be a division and co-ordination of labor; everyone shares the same ideals and values.	there must be conflict to have change; teachers must be re-educated; change agents initiate change; teachers do not want to change; users needs are important but the "expert" decides those needs; Problem-solving should be collaborated or negotiated.	once change begins, it is self-directed; teachers have the time, talents, knowledge, and motivation to change; most effective way to spread information is personal contact; Diffusion occurs best from person-to-person.
view of knowledge	packages (subject disciplines)	problems (interdisciplinary inquiry)	personal exploration (eclectic searches)
Dissemination	Teachers as passive (rational recipients)	Teachers as representative (token?) participants	Teachers as (partial?) developers
View of humanity	people as things (manipulable)	people as social animals	people as individuals
perceptual approach	Task relevance and rationality	stereotype, ignore individual differences	accepts all, shuts out none
Most often used by	government agencies, top management	Those in power	Teachers Centres, small groups individual schools, T-Groups
Key Words	linear change, product, data scientific research, clients, passive receiver, change agents, mass produced, packaging, division of labor, co-ordination of labor, passive consumer, mass audience dissemination, quality goods, educational research, systematic diffusion, educational development	power, control, deficit change, change agent, accountability, efficiency, clients, knowledge is power, profit, user, receiver, client-centered, re-education, competency, collaboration, catalyst, solution giver, process helper, psychotherapeutic model, counsellor	networks, teachers' needs, social interaction, communication skills, collaboration, professional development, life skills, ecosystems, creative change, "quality of life", self-renewal, receiver
Writers	Clark and Guba 1965 Havelock 1971 Taba 1966 Goodlad 1975 Johnson 1976 House 1975, 1979 Becker and Maclure 1978 MacDonald and Walker 1976 Havelock and Havelock 1973 Bhola 1977	House 1974 Kogan 1978 Rogers 1962 Havelock and Havelock 1973 Havelock 1970 Huberman 1973 Becker and Maclure 1978 Lewin 1964 Rogers and Shoemaker 1971 Bennis, Benne, and Chin 1961 Johnson 1976 MacDonald and Walker 1976	Sarason 1971 Smith and Keith 1971 John Dewey 1916 Oliver and Shaver 1966 Huberman 1973 Becker and Maclure 1978 Havelock 1971 Schön 1979 MacDonald and Walker 1976 Goodlad 1975
Definition	(Fishar 1978:56) "Causes of change in a preordained direction through programs designed to improve the competence of personnel in education."	(Agne 1978: 9/) "employment-oriented education, site-specified training designed to meet the needs of a particular school system or community."	(Chambers 1977:13) "a process whereby the teacher is enabled to "restore" and/or maintain and/or develop elaborate skills further his "vocational self-construct" of "I am a teacher."
Stages within inservice	1. Invention or discovery of innovation 2. Development (working out problems). 3. Production and packaging 4. Dissemination to mass audience	1. Tranlation of need to problem 2. Diagnosis of problem 3. Search and retrieval of information 4. Adaptation of innovation 5. Trial 6. Evaluation of trial in terms of need satisfaction	1. Awareness of innovation 2. Interest in it 3. Evaluation of its appropriateness 4. Trial 5. Adoption for permanent use
Problems	innovation is a linear process; all do not share the same values and not rational from viewpoint of the consumer; packages are of poor quality; not easy to identify common aims; which strategy is the 'best', trial stage never long enough or adequate; not enough time to develop the innovation.	assumed user had a definite need for change; there is an emphasis on producing materials, leaving teachers to place own interpretations on them; lack of inservice training; lack of concern for individual's needs, or school needs; too labor intensive	teachers do not have time, talent or motivation to take part in innovation development; enthusiasm "wears out"; limited resources and time; inadequate knowledge on current innovations; network disintegrates after a period of time; lack of communication networks.

(Havelock 1971, Johnson 1976, House 1974, 1979, Becker and Maclure 1978, Rogers 1962, Huberman 1973, Bennis, Benne, and Chin 1961, Schön 1979)

Chapter IV

Application

Introduction

Rogers (1962:19) defines diffusion as "the process by which an innovation spreads." Diffusion is the third step in the four step problem-solving change process that includes research, development, diffusion and adoption. Chapter II examined some of the inherent perspectives implicit in root metaphors that exist in our society and are utilized in the framing of society's problems and solutions. Various inservice models (R.D. & D, P-S, S-I) were examined in Chapter III.

In this chapter the research and ideas of the previous chapters are linked together to form a unified body of knowledge that will answer the question of this research study - an examination of the metaphors commonly found in our society and application of them to current inservice models. This chapter has been divided into three section. The first section is composed of a series of questions, in chart form (Table 5), developed to analyze an inservice educational program. Appropriate answers that highlight each of the inservice models are provided. These questions are intended to be utilized inductively by an analyst of an inservice program. The analyst examines and identifies the developers' or producers' purposes as well as the underlying metaphors, philosophy, and assumptions of the inservice that may have been applied in the development of the inservice. The analyst then identifies the way that the inservice educational program is to be employed by the developer or

producer; i.e. learning approach, role of the change-agent, role of the teacher (adopter), and learning setting.

Having established a series of base reference points through analysis of the inservice program, the analyst is in a position to infer a number of conclusions with respect to questions of "fit" or "congruency." For example, are the goals and objectives consistent with the producer's expressed purposes and rationale? Is the scope of content, coverage, and sequence appropriate for the achievement of specified adopter objectives? If the adopters were to attain all the objectives, would they then have achieved the producer's goals? Is the depth of coverage, pace, and interest level appropriate for the adopter? Are the objectives of the producer the same objectives of the adopter?

Moreover, these questions are also intended to be employed deductively by either a developer or a producer of an inservice program. Before a specific educational program is developed, critical inquiry through the utilization of the questions in Table 5 should become a tool for critical reflection.

The second phase of this chapter explains why each of the questions used in an analysis is important. Reference for this explanation is from the previous three chapters. In the third phase of the chapter, the 1981 Alberta Social Studies Inservice Project has been analyzed deductively to test the validity of the questions in Figure 4.

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Figure 4

Questions that will determine which inservice model is dominant

Question	R.D. & D. Model	P-S Model	S-I Model
Who will frame the initial problems that initiate the inservice?	developer	government agencies, school boards, change-agent, pressure from out of client-system.	teachers, with the help of a change agent.
What will the inservice focus on?	content, materials, cognitive objectives, a set of facts and and theories which are turned into ideas for useful products and services.	attitude change of teachers, new techniques, new skills, new value orientation, new conduct.	new skills, new values, orientations, new conduct, personal growth, professional development; new/ development of attitudes.
Who/What is the target of the change?	curriculum, materials	Teacher re-education, through materials and strategies	Teachers, curriculum, materials, strategies.
Who/What will effect the change?	materials, the process, the package	change-agents	teachers
Who will assess the needs of the teacher?	the developer	outside experts who may negotiate with the teachers.	the teachers who may invite in a change-agent.
Which root metaphor is the basis for the inservice model?	Technological	Political	Cultural
What view of the world is inherent in the model related to its root metaphor?	technology is the solution to man's problem	change will not occur unless there is conflict, negotiation, and compromise.	education is an 'ecosystem', everyone is included, no one on the outside trying to do something to someone on the inside, social relationships.
How is man viewed by the inservice model through its metaphor?	Man is a passive receiver or user.	man waits passively until he is given stimuli from his environment in order to respond.	a man is inherently active, is capable of creative life
How will the teacher be viewed?	passive consumer or user, "as things", clients	client, user, "social animals"	receiver, as an individual
What are the assumptions of the inservice model based on their root metaphors?	-everyone is pursuing a common end and that the context is not a problem. -everyone is reasonable. what people need to make change are the essential elements; research, development and diffusion. If the environment or surroundings change, people have to change. People are rational. If you present enough facts to people they will change. Man is seen as an extension of the machine. Invention and innovation follows a series of orderly steps. Progress is seen as a linear development. Technology is seen as the answer to society's problems. Innovation can be controlled, managed and justified. Development and application of technology will solve man's problems.	Not all is harmonious. There may be problems and value conflicts. -Innovation is a part of a problem-solving process which goes on inside the user. If all the really influential people agree to do something, it will be done. Conflict leads to change. If we have enough money or material wealth, we can buy anything or any change we want. Most people do not want to change. If we can mobilize enough anger and force people. To look at problems around us the required changes will be made. man acts on the basis of power relationships - they can be legitimate or coercive.	Society is more fragmental has more values consensus within groups but less consensus among social groups so that groups must be regarded as subcultures. Most problems are complex. A combination of approaches is usually required. If we have a good warm interpersonal relation, all other problems will be minor. Change involves change in attitudes, skills, values, and relationships. Man is not passive. Man must participate in his own re-education.
How is change defined by the model?	linear, deficit change - (change by crisis, competition or conflict, strikes, internal strife or dissatisfaction.)	linear, deficit change	creative change - (voluntary, self-imposed, defining problems, recognizing new problems and creating new ways of handling them, boredom, just to break a habit or routine.)

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Figure 4

Questions that will determine which inservice model is dominant

Question	R.D. & D. Model	P-S Model	S-I Model
What are the change processes of each model?	1. Invention or discovery of innovation. 2. Development (working out problems). 3. Production and packaging 4. Dissemination to mass audience.	1. Translation of need to problem. 2. Diagnosis of problem 3. Search and retrieval of information. 4. Adaptation of innovation 5. Trial 6. Evaluation of trial in terms of need satisfaction.	1. Awareness of innovation. 2. Interest in it. 3. Evaluation of its appropriateness 4. Trial 5. Adoption for permanent use.
What are the expectations of the implementation of each model? (What is the criteria for success used by the developer?)	solves man's problems with products and development and applications of technology. New materials, hardware, kits, curriculum are employed in the classroom.	outcomes that can be measured; group achievements at what rate; productivity is either increasing or decreasing, teachers practice "change".	change of attitudes, skills, growth of skills, increase of information, professional development.
What are the assumptions of the inservice models?	research is of primary importance; implementation is a technical problem; the teacher is a passive adopter, non-expert; knowledge can be packaged; government is best able to "long range plan"; there has to be a division and co-ordination of labor; everyone shares the same ideals and values.	there must be conflict to have change; teachers must be re-educated; change agents initiate change; teachers do not want to change; users' needs are important, but the "exper" decides those needs; Problem-solving should be collaborated or negotiated.	once change begins, it is self-directed; teachers have the time, talents, knowledge, and motivation to change; most effective way to spread information is personal contact; Diffusion occurs best from person-to-person.
How will the change-agent be viewed by the model/developers?	facilitator, process helper, expert	expert, facilitator, process helper, manipulator - a communication link between the bureaucracy system and the client system.	collaborator who avoids manipulation and indoctrination.
What strategies will be employed?	empirical-rational (lectures, pre-developed questions and answers, observing others, illustrated lecture, use of hard-ware - Video-tapes, slide presentation.)	re-educative (power coercive, demonstration and observation lectures, predeveloped questions and answers, illustrated lectures, role-playing, guided practice, simulations.)	Normative re-education (buzz sessions, role playing, guided practice, brain storming, interviewing, group discussion, demonstration, observation, simulations, feed-back, comeback sessions, evaluation.)
What are the key words used in each model?	linear change, product, data scientific research, clients, passive receiver, change agents, mass produced, packaging, division of labor, co-ordination of labor, passive consumer, mass audience dissemination, quality goods, educational research, systematic diffusion, educational development.	power, control, deficit change, change agent, accountability, efficiency, clients, knowledge is power, profit, user, receiver, client-centered, re-education, competency, collaboration, catalyst, solution giver, process helper, psychotherapeutic model, counsellor.	networks, teachers' needs, social interaction, communication skills, collaboration, professional development, life skills, ecosystems, creative change, "quality of life", self-renewal, receiver.
What are the questions suppressed by each of the models?	How satisfied people feel about it? How do I feel about results? How should results be used?	Who should "really" make decisions? Is it "right?" Is anything in the opponents argument worthwhile? Is my action consistent with my value system? Most feelings.	How should I "really" do it? Do you really know what you are doing? What's in it for me? Competence? Individual differences?

L.M. = Leader's Manual; R.D. & D. = Research, Development and Diffusion; P-S = Problem-Solving; S-I = Social Interaction.

Basic Questions About Inservice

There are two basic questions that all inservice educational programs must answer. These two questions are fundamental to inservice and, depending on the answer, a researcher or an analyst can better decipher the philosophy or root metaphors that underlie each inservice model. Once an understanding of the inservice's philosophy is gained, then a clearer understanding of the nature of the inservice can occur. These same questions can be utilized by an analyst or by a potential adopter evaluating a specific inservice program. Each of the two questions stem from a series of separate questions from the previous chart. It is important when analyzing an inservice program or model to understand why each of the separate questions is asked and how each question fits into the basic two questions. The two questions are:

1. What is the educational problem?
2. How will the specific inservice program and/or model solve the problem?

#1 What is the educational problem?

Adopting Schön's (1979) philosophy from Chapter Two, the framing of the problem is more crucial than any other part of the problem-solving process. Each view of the problem conveys a different view of reality and represents a special way of "seeing." The ways in which the developer states the educational problem determines the kinds of purposes, the values these purposes seek to realize, and the direction in which the developer seeks solutions. In these ways, metaphors generate their own solutions.

Developers, using the technological metaphor, will view and state the problem from a technological stance. For example, technology is seen as the answer to society's problems; research is of primary importance; research, development, and diffusion are the essential elements of change; and man is seen as an extension of the machine and as a passive consumer. The developer is a technician, a government agency, or a top manager. School Boards, Department of Education, or other other people in power will use the political metaphor. These developers view change only from a conflict perspective. They view man as social animals who can change, but who resist change. The third group of developers use a cultural metaphor. Everyone is seen as part of the ecosystem because social relationships are very important. All members are considered equal. Man is not passive and he must participate in his own re-education. The two questions from the previous chart that now have been answered are:

1. Who will frame the initial problem?
2. How will the problem(s) be framed?

#2 How will the specific inservice model and/or program solve the problem?

Schön (1979) states that, in analyzing a problem, the description of the problem depends on the metaphor used in discussing that problem; therefore, the direction of the problem-solving is already set. Similarily, the ways in which a developer states educational problems determines the solution of the problem. A developer with a technological metaphor stance will frame the educational problems in the same stance, will develop an inservice program in the same praxis, and his criteria for success will be in the same metaphor. Within that inservice model he

will choose:

1. the strategies.
2. the role of the change-agent.
3. the key words and concepts in describing the inservice program.
4. the change process in congruence with his metaphoric perspective.
5. the objectives and goals of the inservice.

A developer with a cultural stance or a political stance will frame the educational problems within a cultural or political stance, will develop an inservice in the same praxis, and his criteria for success will be in the same metaphors.

The assumptions of a specific inservice represent the philosophy of a developer. A particular model will be selected because it echoes what the developer views as the problem. The developer, himself, may not be aware of his particular metaphorical perspective or the assumptions that accompany it, but he functions within a specific metaphor and a particular set of assumptions. He may have an electic perspective, but he will be dominant in one of those perspectives. Schön (1979) emphasizes the extent to which metaphors can constrain and sometimes control the way in which we construct the world in which we live. These assumptions include the developer's and the inservice model's view of the world, of man and the teacher. The Research, Development and Diffusion model's root metaphor is technological. The metaphor for the Problem-Solving model is political and the metaphor for the Social-Interaction is cultural.

All three inservice models and their developers view progress in the western tradition. Progress is seen as linear development where each step is a step forward, getting better and better. Therefore, change is natural and good. However, how change should occur differs in each model and de-

pends on its philosophical assumptions and root metaphors. The Research, Development and Diffusion model views change as deficit because it views man as passive and concludes that man will have to be convinced that change is necessary. Change is also viewed as deficit by the Problem-Solving model because man resists change and, therefore, must be persuaded that change is required. The Social-Interaction model considers change as creative because teachers will participate in their own re-education. As well as being the receivers of the change, they are also the developers.

The way in which a developer defines an educational problem will determine the direction of the solution (Schön 1979). If the materials are seen as the problem, the Research, Development and Diffusion model will be chosen to solve the problem because the learning package or kit is the target of the change. However, if the problem is framed towards the teacher, the answer to the problem and the target for the inservice model will be to change the teacher. The teacher will be expected to change his attitudes, skills, values and/or teaching strategies. But when the teachers themselves frame an educational problem and elect to change, or to expand or develop new attitudes, skills, values or metodologies, their inservice educational programs will be developed on the Social-Interaction model. This model depends on social interation, self-help, and personal exploration. The model views teachers as individuals who can and will change because they initiate change.

The developer of the Research, Development and Diffusion model of inservice expects the materials, learning package or kit to change the teacher because teachers are rational. In the R.D & D model when teachers are presented with enough facts and research, they will change. Developers

employing the Problem-Solving model will expect the change-agent to effect the change. The change-agent as the experts or "doctor" anticipate their clients to change due to power-coercive, manipulative and/or collaborative techniques. This is a psychotherapeutic model. Those developers practicing the Social-Interaction model assume the teachers will affect the change because they are the ones who initiated the change based on their own needs.

The developer of the Research, Development and Diffusion model's stance is that the material, package or kit will function as a change-agent. The teacher is rational and reasonable. If he is presented with enough facts at the right time and in the right place he will change; therefore, there is no need to be concerned with an elaborate innovation process utilizing a change-agent. The developer using the Problem-Solving model defines a change-agent as a professional person who attempts to influence adoption decisions in a direction that he feels is desirable. The change-agent is also the communication link between the bureaucratic system and the client system. He is an expert who may act in one of three ways: he may be a catalyst, a solution giver, or a process helper. The Problem-Solving inservice model's success evolves around the success of the change-agent. A change-agent in the Social-Interation inservice model is not mandatory; however, he may be invited to join as an equal participating member of the inservice project, but he will not have a dominant well-defined role. The developers of the Social-Interaction model view the change-agent as one who has an expertise that they themselves do not have, but which can be merged into their body of knowledge and skills.

It now has been demonstrated that to analyze an inservice model there is need for only two basic questions: What is the problem? Which inservice model will serve to answer the problem? Once the first question has been answered, the second question has also been answered. However, to analyze an inservice program or to develop an inservice program, a number of other questions must be raised. Table 4 fulfills this purpose. Just because the developer has indicated the direction of his answer to the educational problem does not imply that he has internal congruence or external congruence. One of the duties of the analyst is to determine whether or not the developer has external and internal congruence. The 1981 Alberta Social Studies Inservice Project will be analyzed on the basis of the same questions as in the first chart. Comments as to its congruence will be made in Chapter V. See Figure 5, p. 90.

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Figure 5

ALBERTA SOCIAL STUDIES CURRICULUM INSERVICE

Which Inservice Model is the 1981 Social Studies Inservice Project?

Questions posed by the analyst	Answer from the 1981 Social Studies Inservice Project	Model
Who framed the initial problem?	Department of Education	P-S (commissioned and packaged by government funds)
What will the inservice focus on?	The package materials. L.M. p3 1. "This inservice package must clearly illustrate the broad purposes of the Alberta Social Studies program and how teachers can use materials to achieve those broad purposes." There are 11 criteria, 3 goals and 11 objectives that all relate to the focus of this kit. Most of them refer to the kit (Social Studies Inservice package).	R.D. & D. (focuses on materials, a package)
Who/What is the target of the change?	The package. L.M.p4 goal A. "This inservice kit will encourage teachers to understand the basic philosophy of the 1981 Alberta Social Studies Program." C. "This inservice kit will encourage teachers to appreciate the significance of some of the more important aspects of the 1981 Social Studies Curriculum." L.M.p13 P. "We know how important and how difficult your inservicing tasks will be. It is our fervent hope that these materials will make that job easier and more rewarding."	R.D. & D. (materials) P-S (re-education of teachers)
Who/What will affect the change?	Change-agent L.M. p1 "This manual was designed to be used by the social studies consultants, co-ordinators, and lead teachers giving the Social Studies Inservice." L.M.p10 "It would be a service instrument provided by Alberta Education for use through the province by trained workshop leaders."	R.D. & D. and P.S. (expert change-agents)
Who assess the needs of the teacher?	Alberta Education - based on the Downey Report - 1975 L.M.p2 "The 1975 Downey Report stated that "there has been considerable slippage in the translation of the Master Plan (1971 Social Studies Curriculum) into programs."	P-S (Developers collected date, interpreted the data)
Who are the developers of the inservice project?	L.M.p1 "The inservice package was initially designed and developed by a four member development team consisting of: Harvey Duff - Project Co-ordinator Richard Wray - Project Developer Frank Crowther - Associate Director of Curriculum Terry Kernaghan - Learning Resources Officer."	R.D. & D. (Department of Education personnel)
What are some of the generative metaphors of the inservice model?	R.D. & D. - technology, industry P-S - economics, industry military S-I - econsystem, growth, ecological community	R.D. & D) P-S)fits the patterns S-I)
What are the generative metaphors inherent within the inservice package?	technological - tools, sequence, analyze, components, package, kit economic three-day sessions, all components are timed.	R.D. & D. (fits the pattern) P-S
What view of the world is inherent in the inservice package?	inferred by analyst - technology is the answer to society and/or man's problems	R.D. & D (the kit is the answer to educational problem)
How is man viewed by the inservice package?	inferred by analyst - man is a passive consumer or user. Man is rational.	R.D. & D.
How is the teacher viewed in the inservice package?	passive consumer - L.M.p9 #11 - "There will likely be considerable discussion after the use of components one and two. Most of this discussion should be positive and focus on items covered in the following parts of the workshop. However, some participants may have a beef about the program in general. Try to delay this discussion until later in the day or confine it to a one-to-one discussion. A general gripe session will consume valuable time."	R.D. & D. (passive consumer will accept the package).

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Figure 5

ALBERTA SOCIAL STUDIES CURRICULUM INSERVICE

Which Inservice Model is the 1981 Social Studies Inservice Project?

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Who/What will affect the change?	Change-agent L.M. p1 "This manual was designed to be used by the social studies consultants, co-ordinators, and lead teachers giving the Social Studies Inservice." L.M.p10 "It would be a service instrument provided by Alberta Education for use through the province by trained workshop leaders."	R.D. & D. and P.S. (expert change-agents)
Who assess the needs of the teacher?	Alberta Education - based on the Downey Report - 1975 L.M.p2 "The 1975 Downey Report stated that "there has been considerable slippage in the translation of the Master Plan (1971 Social Studies Curriculum) into programs."	P-S (Developers collected data, interpreted the data)
Who are the developers of the inservice project?	L.M.p1 "The inservice package was initially designed and developed by a four member development team consisting of: Harvey Duff - Project Co-ordinator Richard Vray - Project Developer Frank Crowther - Associate Director of Curriculum Terry Kernaghan - Learning Resources Officer."	R.D. & D. (Department of Education personnel)
What are some of the generative metaphors of the inservice model?	technology, industry economics, industry, military	ecosystem, growth, ecological community
What are the generative metaphors inherent within the inservice package?	technological - tools, sequence, analyze, components, package, kit economic - two-day sessions, all components are timed	R.D. & D. (fits the pattern) P-S.
What view of the world is inherent in the inservice package?	inferred by analyst - technology is the answer to society and/or man's problems.	R.D. & D. (the kit is the answer to educational problem)
How is man viewed by the inservice package?	inferred by analyst - man is a passive consumer or user. Man is rational.	R.D. & D.
How is the teacher viewed in the inservice package?	passive consumer - L.M.p9 #11 - "There will likely be considerable discussion after the use of components one and two. Most of this discussion should be positive and focus on items covered in the following parts of the workshop. However, some participants may have a beef about the program in general. Try to delay this discussion until later in the day or confine it to a one-to-one discussion. A general gripe session will consume valuable time."	R.D. & D. (passive consumer will accept the package.)
What are the assumptions of the inservice package based on the root metaphor?	inferred by the writer. 1. everyone is pursuing a common end and that the context is not a problem. 2. everyone is reasonable and that what they need to make change are research, development and diffusion 3. people are rational, if you present enough facts they will change. 4. Progress is seen as a linear development. 5. Innovation follows a series of orderly steps. 6. If we have enough money we can buy change. 7. If all the really influential people agree to do something it will be done.	Technological 1-5 Political 6-7 (inferred by general tone of whole package)
How is change defined by the model?	linear L.M.p3 #7 Criteria "It must have change as an intended goal, but along term growth continuum."	R.D. & D. (linear)
What is the change process that is involved in the inservice package?	R.D. & D. - inferred by the analyst - 1. Invention of the innovation. 2. Development (working out problems) 3. Production and packaging. 4. Dissemination to mass audience.	R.D. & D. (refer to L.M. to see list of credits, inservice is mass produced, complete no changes allowed within inservice.
What are the expectations of the inservice package?	L.M.p4 - goals "1. This inservice kit will encourage teachers to understand the basic philosophy of the 1981 Alberta Social Studies Program. 2. This inservice component will identify some of the more important resources and materials that teachers can use with the 1981 S.S. program. 3. This inservice kit will encourage teachers to appreciate the significance of some of the more important aspects of the 1981 S.S. curriculum.	R.D. & D. (the kit will solve the problem as defined by the developers) R.D. & D. R.D. & D.

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Figure 5

ALBERTA SOCIAL STUDIES CURRICULUM INSERVICE

Which Inservice Model is the 1981 Social Studies Inservice Project?

Questions posed by the analyst	Answer from the 1981 Social Studies Inservice Project	Model
What are the assumptions of the inservice?	L.M.p6. "The designers of this inservice program found it necessary to identify and adhere to certain assumptions about how the service is to be used. These basic assumptions are: 1. This workshop must be conducted by a resource person who has been oriented to the goals, objectives, modules and procedures of this inservice program. 2. The usual length of time available for teachers for inservice activities is limited to one, two days, or less. 3. This inservice program will only provide an opportunity for participants to become generally aware of the 1981 Social Studies Curriculum and resources. 4. This program should be followed up by other types of inservicing available from subject specialists, consultants, or supervisors from local school districts or regional offices." Unwritten assumptions: inferred by analyst. 1. change is natural, good and progressive 2. implementation is a technical problem. 3. the teacher is a passive adopter. 4. knowledge can be packaged. 5. government is best able to 'long-range plan'. 6. There has to be a division and co-ordination of labor. 7. change agents initiate change. 8. teachers must be re-educated. 9. teachers do not want to change. 10. users needs are important, but the "experts" decide those needs.	1-6, R.D. &D. 7-10, P-S (inferred by analyst by general tone of inservice kit)
How is the change agent viewed by the developer?	an expert who is a process helper and a facilitator See L.M.p9 "As well, the workshop leader will still have to move from group to group answering questions and facilitating the discussion process." L.M.p10 "The general intents and direction of the component should be quite clear to anyone having undergone the workshop leader's training session. If you have not had a 'hands on' training session on this component, go through the entire mini-workshop. Do not use the component unless you are thoroughly familiar with it."	P-S. R.D. & D. (expert change-agent)
What strategies are employed in the inservice?	visual presentation - videotape "Change: The Ultimate Challenge"- component 1. lectures - components 1, 2, 3, 4 discussions based on inservice package questions - components 2, 3, 4, 5 transparencies - "Patterns and Parameters" - component 2, Questions and Answers, components 2, 3, 4, 5, 6 Readings - a variety of masters duplicated materials, components 4, 5 Participant decides what questions to discuss - component 6 Evaluation of inservice - component 6 Brainstorming - component 6 demonstration and observation illustrated lectures - components 1, 2 role playing - component 4 guided practice - component 4, 6 simulation of inquiry process - component 4, 6	R.D. & D. R.D. & D R.D. & D. P-S R.D. & D. R.D. & D. R.D. & D. S-I S-I S-I P-S; S-I R.D. & D, P-S P-S, S-I P-S, S-I P-S, S-I (strategies fits these models)
What are some of the key words and concepts used within the inservice package?	L.M.p5,7 - components; L.M.p3 - linear change; L.M.p5 - analyze L.M.p6,7 - sequenced; L.M.p6 - two-day session; L.M.p7 - package L.M.p8 - tool; L.M.p6 - utilization; L.M.p13 - work; L.M.p2 - instrument; L.M.p - videotape; L.M.p3 - trained workshop leaders,	R.D. & D (from research data these words fit the model?)
Questions that are supressed by the inservice package	L.M.p9 #11 "There will likely be considerable discussion after the use of components one and two. Most of this discussion should be positive and focus on items covered in the following parts of the workshop. However, some Participants may have a beef about the program in general. Try to delay this discussion until later in the day or confine it to a one-to-one discussion. A general gripe session will consume valuable time." How well people feel about the inservice program - Is this the most effective model of inservice to attain the objectives of the inservice?	R.D. & D. (teachers are passive consumers - people are rational who will change if given the right information.) R.D. & D. (Teachers are never asked to evaluate the kit)
Which root metaphor is the basis for this inservice package	technological (secondary metaphor is political)	
Which inservice model is the dominant inservice model in this package?	R.D. & D. (secondary model is problem-solving)	

Conclusions:

A survey of the answers to the twenty-one questions indicate that the Research, Development and Diffusion model is the most dominant model in this 1981 Alberta Social Studies Inservice kit, while the Problem-Solving model is secondary. For the most part, the only place the Social-Interaction model appears is in module six, which was not written by the same writers of the other modules. This is not unusual that more than one model be utilized in an inservice program. It would indeed be rare for an inservice program to appear in its "pure form." Further discussion of this inservice kit will be written in Chapter V. The analysis of this inservice kit was not to criticize or to label, but rather to help validate a series of questions that were developed to analyze an inservice program as to its root metaphor(s) and inservice model(s), so that developers, producers and potential adopters of inservice programs become aware of the root meaphors that are basic to the particular inservice models.

Chapter V

Summary, Discussion, and Implications

Summary

The purpose of the study was to examine three metaphors (technological, political and cultural) commonly found in our society and apply them to three current inservice models (Research, Development and Diffusion, Problem-Solving, and Social-Interaction) that are part of the implementation stage of educational innovation. In Chapter I, it was ascertained that in our Western society, change is inescapable, linear, and natural. Change is viewed in terms of progress, which in turn is viewed as a "step forward", where neither fixation nor regression is possible. Progress is defined from the scientific thought process and has four stages. These stages include research, development, diffusion and adoption. Innovation, which is deliberately planned, is an integral part of diffusion, while inservice is the vehicle which is employed to ensure implementation of the innovation. There are numerous approaches to change, but these do not automatically produce change. Why not? This research project attempted to answer this question. Part of the answer lies in the relationship between thought and behavior. Whorf (1964) believes that language shapes our innermost thoughts. Thoughts, in turn, are shaped by our language. Our culture, with its concepts of change, progress, innovation, time and space has shaped our language as well. However, each individual's thought and behavior pattern is a combination of both culture and personal experience. Within the language we label people and from these labels come expectations and specific models. For example, we expect different behavior from a user, a client, a passive consumer or an adopter. Yet all

of these labels concern one person - the teacher. This accounts for the diversity of inservice models with their divergent definitions, goals and expectations.

Another part of the answer lies within the term inservice itself. There are no common definitions, concepts, methodologies, or expectations. The basic perspectives of the developer are often very different from the perspectives of the adopters of the inservice program. Each sees educational problems differently. Thus, the dichotomies of inservice programs are explained.

Metaphors can control the way we construct the world in which we live. They often serve as ways of channelling action and certainly generate their own solutions by the way their presence structures and defines the problem we face. Metaphors are central to how we think about the world. Only by recognizing which metaphors we are utilizing to solve a problem, then criticizing the metaphor, can we learn to become reflective about the problem-solving process and to consciously select the perspective which shapes our responses to current educational problems. It is only when we can become involved in a critical inquiry focused on metaphoric language structures that we can examine inservice educational programs.

The three metaphors central to this study were the technological, the political, and the cultural metaphors. The technological metaphor views the world through the dynamics of industrial change. The act of research begins as a set of facts and theories which can be turned into ideas for useful products and services. Knowledge is power. Science can solve man's problems. Man is treated as an extension of the machine. Innovation can be controlled, manged and justified.

The political metaphor contends that conflict, competition, compromise, and negotiations are the basis for change. There has to be a superior power and a lesser power so that opposing factions can bargain and compromise. Concepts of industrial efficiency, economic growth, marketable resources, and military expediency are important aspects of this metaphor. Reinforcement and stimulus control, B.F. Skinner's Theory of Operant Conditioning, represent the process by which human behavior becomes shaped into certain patterns by external forces (Joyce-Weil 1972). Face-to-face interaction is an important aspect of this metaphor.

The relationships of the person to his society of his direct relationships with other people is the basis of the cultural metaphor. In this metaphor the emphasis is on the personal psychology and the emotional life of the individual. Each person constructs knowledge by reflecting on his own experiences. Society is viewed as numerous subcultures but all are part of an ecosystem where everyone is within the whole. No force on the outside has control over someone on the inside. Change is viewed at the personal level focused on habits and values, which in turn, effect the whole society. This is a personal growth metaphor.

Chapter III critically examined the three inservice models in their "pure" form. Each of the three models illuminate one perspective of the innovation process. The Research, Development and Diffusion (R.D. and D.) model assumes that solving problems is primarily a matter of attention, application, and money. A package of knowledge can be massed produced and widely disseminated. The producer controls the process and the type of innovation. The teacher is a passive and a rational consumer who will change if given enough of the right information. Change is depicted as an

orderly sequence which begins with the identification of a problem. The Research, Development and Diffusion model concentrates on the developer, but acknowledges a lack of institutional structures for designing and developing new ideas and materials.

The Problem-Solving (P-S) model is built around the user of the in-service program. This model assumes that the user has a definite need and that the inservice program will satisfy that need. Re-education of the teacher is of prime importance in this model. Teachers are conservative and do not want change, so change-agents are needed to overcome inertia, to prod and to pressure the system and the people to be less complacent and to start working on serious problems. The P-S model is a psychotherapeutic model. The change-agent is a professional person who attempts to influence change in the direction that he feels is most desirable. The Problem-Solving model concentrates on wide diffusion throughout an organization or an educational system, but acknowledges the lack of processes for implementing change once they are undertaken.

The theme of the Social-Interaction model is continuous self-renewal, where the potential adopter generally hears of the new practice and decides to use it after consultation with other people. This model stresses the importance of inter-personal networks of information, opinion leadership, personal contact, and social integration. Innovation is transmitted primarily through the social interaction of the group members. At each stage of innovation in this model, the potential adopter generally turns to different sources of information. The Social-Interaction model concentrates on the dynamics of the individual adopter but has few vehicles for dissemination of innovation to a larger public.

Inservice is the vehicle of diffusion for innovation. Within the Western tradition diffusion is the third stage of scientific thought. Each inservice model has a different root metaphor which speaks from a different perspective. A definite role of the teacher is expected by each model. Each model is characterized by the different roles of the developer, different values, different rationales, different criteria for success and different views of the problem to be solved. But all models are common in some respects. All have the same concepts of change, progress, and innovation. Change is inevitable, natural and linear. Progress is continuous with no fixity or regression. The three inservice models belong, typically, to the Western educational tradition.

The research and ideas of the previous three chapters are linked together to form a unified discussion in chapter IV. Through a series of critical questions, it was demonstrated how the root metaphor of each of the inservice models does in fact, permeate throughout the entire model. For example, the basic assumptions of the political metaphor are, in essence, the same assumptions of the Problem-Solving inservice model. The entire Problem-Solving model is constructed on these assumptions. A developer of the inservice model frames his initial educational problem from a political metaphor and therefore views the world, man, and the teacher from this perspective. Because he frames the problem from this perspective, he perceives the answer from the same stance. The rationale objectives, methodologies, expectations for success will be from a political stance. The inservice program will be a political praxis. The same applies for the other inservice models.

Altiek (1960) suggests that a writer's metaphors also tell the reader other things about him and his attitudes, as well as the attitudes he wishes the reader to have. I would suggest that this also applies to a developer and/or a producer of the inservice program. The developer's values are displayed by the metaphors that underline the inservice model he chooses to implement his solutions. Developers need to become aware of their own values and attitudes and to explain their position before attempting to solve any of the educational problems or inservice program problems. They need to define their own values before they help to clarify teachers who are trying to explain their own values. Clarity can be accomplished if the developer becomes aware of the root metaphors that he utilizes and if he critically analyzes these metaphors to ascertain if, in fact, they are representative of his values and attitudes.

I would suggest that the developers of the 1981 Alberta Social Studies Inservice project have not clarified their values and attitudes before beginning their task. There is neither internal nor external congruence in this package. Not all the criteria listed in the Leader's Manual are congruent with the methodology displayes in the six modules of the inservice kit. A chart is the best device to indicate this. See Figure 6, p.99.

The developers of this inservice kit imply through their criteria or rationale that they are of the cultural metaphor and that they will develop an inservice program based on the Problem-Solving model with an emphasis on teacher participation in the development of the program. Or, they will develop a program based on the Social-Interaction model where the developers would become equal participating members in the program development. However, by examining the six modules of activities that

Figure 6

Is There Internal Congruence?

Rationale from Leader's Manual p.3	Methodology from inservice Project kit
1. teachers must be given "... opportunities to identify their own needs..."	No where is this procedure specifically allowed. Component 6: "Kanata Kits and Teaching Units Module" gives the teachers an opportunity to rank order a list of "beefs and bouquets" which have been given them. Later the teachers are given forty minutes to solve these "beefs" from their own teaching experiences.
2. "... must allow teachers to feel secure in examining, questioning, revising, personalizing the program..."	This "personalizing" is not allowed to any extent. In fact, on Page 9, #11 in the instructions to the Workshop Leader, only positive discussion is to be focused on and anyone who wants to "beef" is to be dealt with on a "one-to-one" basis later. According to this direction examining and questioning will not be tolerated. Such "beefs" are seen as opposed to the purpose of the inservice. To allow the teacher to "feel secure" with the social inquiry approach, there are two parts within the modules: there is forty minutes in the Skills Objective module and approximately forty minutes in the Kanata Kits and Teaching Units Module. That is eighty minutes out of a prescribed three-day inservice program.
3. "It [the inservice project] must have active participation in order to effect behavioral change [of the teacher]."	There is very little allowance for this in this kit. The Skills Objective Module has a role play simulation for forty minutes and the Kanata Kits and Teaching Units Modules has forty minutes brainstorming session for one group of participants while the other group of participants proceeds through a mini-social inquiry session.

are planned for the teachers and also their rationale, it becomes obvious that the dominant inservice model is the Research, Development and Diffusion, and the secondary model is Problem-Solving, with a slight use of the Social-Interaction model in modules 3 and 6. The attitudes and values of the developers of this kit are contradictory; they write in one metaphor and practice in another metaphor. The values and attitudes of the developers are important because the inservice project kit was to be designed to solve two problem areas. They are:

> "1. The presentation of consistent and thorough interpretation of the philosophy and objectives of the 1981 Social Studies Curriculum.
>
> 2. The provision of an opportunity for teachers to discuss and comprehend the revised program which, in turn, should contribute to its implementation. (Leader's Manual:3)."

The developers were directed to help teachers clarify or change their values and attitudes in order to be consistent with the Alberta 1981 Social Studies Curriculum. In fact, the teachers will probably not know about the contradiction of congruence between the rationale and methodology of the kit. Few of them will see the Leader's Manual. However, they will observe the lack of external congruency between the philosophy of the social studies curriculum with the emphasis on social inquiry and creative learning and the inservice program for teachers with the emphasis on passive non-creative learning. Once again, a chart is used to demonstrate this argument. See Figure 7 , p. 101.

There is very little external congruence between how the Department of Education expects the student to be taught his social studies and how the Department of Education taught the teachers how to teach the social inquiry process. Time could be given here to prove teachers will not try

Figure 7

Is There External Congruence?

How will the students be taught?	How will the teachers be taught?
1. Students will identify and focus on the issue.	The developers of the inservice project defined the issue, based on their assessment of the teachers' needs.
2. Students will establish research questions and procedures.	Teachers spend 135 minutes out of 3 days answering questions of the developers and forty minutes in component; writing and answering their own research questions. At no time do teachers decide on the procedures of the inservice project.
3. Students will gather, analyze, and evaluate data.	Teachers look and listen to 190 minutes of audiotapes, transparencies, lectures, and read specific readings that the workshop leaders and developers provide. This is the gather information stage. Teachers spend 135 minutes answering questions of the developers in order to analyze, synthesize, and evaluate data.
4. Students are expected to resolve the issue (Not all students need have the same response).	There is a small allowance made for resolving issues in module 6. It is assumed that all teachers are pursuing a common end. It is anticipated by the developers that teachers may be difficult to work with; "we know how important and how difficult your inservicing tasks will be. It is our fervent hope that these materials will make that job easier and more rewarding (L.M. p.13)."
5. Students are expected to apply the issue.	Teachers are expected to teach, using the social inquiry approach.

Adopted From - Process of Social Inquiry — Leader's Manual

something new unless they are comfortable with the material. Inservice programs must have some impact on each individual participant. Harris and Bessant (1969) and Joyce (1980) have much to say about teaching new methodologies to teachers. However, this is not the underlying aim of this study. The emphasis is on the value question. The values of the developers concerning the world, man, and the teacher are important. These values are indicated in the inservice kit produced for Alberta teachers. In the Alberta inservice kit technology can solve educational problems; man is seen as rational and able to change if he is given enough facts; and the teacher is seen as a passive consumer. These values are from the technological metaphor and are displayed in the Research, Development and Diffusion model which is the dominant model of the kit. The secondary metaphor utilized by the developer is the Problem-Solving model. The values exhibited by this model concerning the world, man and the teacher are: conflict leads to change; man will change if the influential people agree to do something; the teacher can be re-educated, but is the user or client of an inservice program.

Several legitimate questions can be asked of the developers of the Alberta inservice kit. They are:

1. Who framed the initial educational problem that utilized the technological and political metaphor?
2. Are the developers aware of the root metaphors dominant in the Alberta Social Studies Inservice Kit?
3. Would the Alberta Social Studies Inservice Kit be changed after critical reflection of root metaphors?
4. Which set of values should dominate the Alberta Social Studies Inservice Kit?
    a) The rationale in the Leader's Manual?

b) The methodology in the six modules?

c) Or, the rationale of the 1981 Alberta Social Studies Curriculum?

5. Are the developers aware of the lack of internal congruence between the rationale of the Alberta Social Studies Inservice Kit and the methodology of the same kit in the six modules?

6. Are the developers aware of the lack of external congruence between the rationale of the philosophy of the Alberta Social Studies Curriculum and the methodology of the Alberta Social Studies Inservice Kit through the six modules?

Implication of this Study on Education

Many people in education can benefit from a study of metaphoric language. Some of these include developers of inservice programs, curriculum developers, principals creating school time tables or programs, school boards setting policy or creating labels for people, central office personnel establishing and maintaining policy, classroom teachers, or teacher professional development committees.

Inservice Models

Lauer (1973) claims the target of change is either group focused, where the whole group will change as demonstrated by the Research, Development and Diffusion and the Problem-Solving models, or is ego-focused, where the individual changes as in the Social-Interaction model. When the individual is the target of change, it is assumed that an individual change will eventually produce change in the entire social order. Who will make the change can be classified into two groups: the participation of all those involved as in the Social-Interaction model or one group imposing change on others as demonstrated by the Research, Development and Diffusion and Problem-Solving models. Democratic change is not always

the only way, the fastest way, nor the most efficient way. It is often easiest to organize an elitist group to dictate change. There may be a need for an expert who possesses certain esoteric knowledge and who may demand the kinds of changes which would not be chosen in a democratic setting. The group, in a democratic setting, may not be willing to expend the time and energy necessary to develop democratic procedures. For efficiency and profit, an elitist approach is superior, but for democratic change, social interaction and dialogue is best.

There are three basic strategies of change. The rational-empirical strategy states that man is rational and will follow his self-interest when shown. The power-coercive strategy states that man acts on the basis of power relationships -- legitimate or coercive. Third, the normative-re-educative strategy states that man is rational and will act on the basis of social norms as well as from knowledge and self-interest.

People who would best benefit from this aspect of the study are the developers of inservice programs, producers of the programs, analysts of the programs, or teachers who are the potential adopters of the program. The developers and/or the producers of such change models could be school boards, central office personnel, principals and a committee of teachers, groups of teachers, department heads and their subject teachers, or curriculum associates.

No one model of inservice is universally applicable. Each situation must be carefully assessed before an appropriate model is selected. And for many, if not most, situations, a mixture of models may be called for.

A number of people can benefit from this system of analysis. First, the developer, who initially frames the problem and therefore "points

the direction of the arrow" to the answer, should be critically analyzing their metaphorical stance before framing the problem. The developer may be the Department of Education, Central office of a School Board, school staff, or a group of interested teachers. Second, the developer or the producer of the inservice program after examining the problem, must select the inservice model or combination or models. The questions developed in Chapter IV Table 4 be the basis of the examination. During the development of the inservice program, constant evaluation of congruence should be made. A third group of people who will benefit from this system of analysis includes the inservice analysts who are analyzing for internal and external congruence. The fourth group includes the potential adopters of the inservice program. They will evaluate the program privately, or among themselves, often after the inservice program or as part of a written questionnaire.

The Application of the Metaphors and Inservice Models

Once the criteria are established on the basis of requirements which can be analyzed accurately by cursory examination, an analyst can examine and identify the developers' purposes for producing the inservice program as well as any underlying philosophy of learning that may have been applied in the development of the product. This examination is done through the use of a common language and common framework, which enables accurate and reliable information exchange with others. This analysis provides detailed information so that others may interpret and apply that information to find those inservice models with similar characteristics.

Further Research

There are a number of possible research spin-offs from this research project.

1. A continuation of the study of metaphors and their application into education is one possible area. The growth metaphor is one that is common to much of our classroom teaching. Scheffler (1964) suggests that there is an obvious analogy between the growing child and the growing plant, between the gardener and the teacher. In both cases, the developing organism goes through phases that are relatively independent of the efforts of the gardener or teacher. Another metaphor Scheffler (1964) mentions is the molding one, where the child is like clay and the teacher is like the sculptor modling the clay.

2. This study has only applied three metaphors to a study of inservice educational programs. Other areas these three metaphors could be applied are: the classroom, curriculum development, school administration, central office administration, testing and evaluation , Department of Education, or the University education department.

3. The development of new inservice models using the same or different metaphors is another research project. For example, no one has combined the best aspects from all three models to develop a new model. The creation of a new metaphor and a new inservice model that is congruent with educational thinking and problems is another possible project.

4. This research project theme has come from the developer's perspective. What is the criteria for success from the developer's perspective? Another research porject might be from the adopter's stance. What is the criteria for success from the adopter's stance? A list of some twenty or twenty-five words most typical for each metaphor might be given to

to teachers, who have been through the experience of an inservice program. Teachers are then instructed to circle the five or ten terms that they believe are the most typical of the inservice session. The researcher would be able to classify these words under each of the metaphors and/or inservice model and then evaluate the inservice programs from a teacher's perspective.

Discussion of the Research

The first sentence of this research study states that "change is inescapable in education (Lortie 1975:214)." Yet Nisbet (1969:270) claims that change is not natural or inescapable. What is natural is the desire for permanence? Social behavior tends to remain fixed and unchanging. Nisbet states that the desire to preserve is very strong in man.

He writes, "When it is not necessary to change, it is not necessary not to change (Nisbet 1969:270)." This philosophy is recognized by the Problem-Solving model. Often in education, we change for the sake of change. We change because we have not changed in a few years, so it must be time to change. Change means progress to us, a step forward. One never considers that this particular change may really be a step backward or that "staying the same" is good. As educators it may be time to re-consider our definitions and concepts of change and progress that are dominant in our society.

A basic theme of this research has been the influence that metaphors have on us. The purpose of this research is not to criticize any one metaphor, nor any one inservice model. The purpose has been, rather to make us more aware the tremendous influence that metaphors have on us and, in particular, on the inservice educational programs. Much time has been

spent discussing how inservice programs are not considered successful by the adopters. Time has also been spent discussing some of the various suggestions for successful inservice. There is no agreement by the various writers as to why they are unsuccessful nor how to make them successful. I believe the reason why there is not agreement is that the various writers hold different root metaphors at the basis of their criteria and have different personal experiences from which to draw. This hypothesis also applies to the various developers of the inservice programs as well as the many adopters of the programs.

Writers, developers, producers and potential adopters of the programs should become aware of their root metaphors. Metaphors organize thought, channel action and control the way we construct our world. Because this is indeed true, we are probably victimized by metaphors. We, in education, transfer the economic, military, industrial, technological and political metaphors into education in the form of answers to our educational problem without examining their philosophies, reasons why they were developed or even end results. For example, we transferred the military's I-Q test into education with apparently no examination and analysis of why the military developed this particular test. We, in education, should not be concerned with testing children to find out how fast they can learn to become an extension of a machine. Yet we do. We have been the victims of the military metaphor.

Educators must learn to recognize the presence of metaphors, learn to use them instead of being used by them, and to even learn to develop new ones that may be more appropriate to education. If we are to avoid being used by the metaphors and really attempt to solve education problems,

then it is important to become aware of the root metaphor which shapes our perceptions of phenomena.

The ability to describe the dissimilarities as well as the similarities between the educational problems and the metaphors that we are viewing the problem for is significant. We need to become aware of, and to focus attention upon, the root metaphors which underlie our educational problems. When we become aware of the root metaphors in our educational problems, our diagnosis and prescriptions cease to appear obvious and we find ourselves involved, instead, in critical inquiry. Being aware of root metaphors becomes a tool for critical reflection when we attempt to solve educational problems through the vehicle of inservice programs.

The defining of problems and the perspective from which the problem is viewed matters. The way in which we state educational problems determines both the kinds of purposes and the values we seek to realize, and the direction in which we seek solutions. By being aware of the ways in which we state educational problems and by reflecting on the problem-solving processes which are usually tacit, we may consciously select and criticize the perspectives which shape our responses. We create new meaning when a metaphor is used and understood.

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